Unified Team Diving™

Standards and Procedures

Version 3.2a
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1.0 General

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1.1 Overview

Our Mission

UTD International was formed:

- To develop and certify instructors who will teach and incorporate the UTD Principles, Standards and Procedures, and diving ethos into their classes, while ensuring their course curricula adheres to the UTD Standards and Procedures.
- To develop and certify divers who want to dive and incorporate the UTD approach into their diving.
- To ensure that the students who attend a UTD certified class receive the highest standard class that adheres to the highest set of Standards and Procedures as set by UTD.
- To provide the most technologically advanced Online Learning Programs so instructors and students alike can receive up-to-date information on UTD Classroom materials, diving techniques, teaching skills and other resources to help improve one's class or diving.
- To allow “open” access to the Online Classroom for any instructor and/or Student of another agency who may want to use the materials to support their DIR/Hogarthian based class.
- To extend beyond our roots in DIR/Hogarthian and create the next level of “Thinking Diver” through our unique teaching methodologies.

Unified Team Diving (UTD) Ethos

UTD is an inclusive philosophy that unifies the team towards the dive, ultimately improving the safety, conformity and competence of the team and the members and therefore the enjoyment of the dive.

Although the roots of Unified Team Diving philosophy and principles (the ethos) can be found in the Hogarthian/DIR equipment configuration and diving principles, UTD is the next generation of teaching and presenting diving principles that highlight consistency and unification within your team's:

- Equipment Configuration
- Dive Objective and Planning

- Training level
- In-Water skill set
- Diving Experience

The UTD Covenants

1. Unified Team Diving – The team is your backup – gas, equipment and brain.

2. The Thinking Team – No team member relies on another person or piece of equipment to make the “sole” decisions. No “trust me” dives.

3. Rock Bottom Gas Management – Every diver carries enough gas to bring two divers to the next available gas source, either the surface, a deco bottle, or stage bottle.

4. Standard Gas – Dive the desired PPO2 at the target average depth and keep the equivalent narcosis depth to 100’/30m or less. NO DEEP AIR.

5. Consistent Modular Equipment Configuration – An equipment configuration that is consistent, modular and scalable within the team for all types of diving and diving environments.

6. Minimalist Approach – Only take what you need for the dive.

7. Holistic – All components of the system are thought out, work together, and have a solid reason behind their use and placement.

8. Streamlined and Accessible Equipment Configuration – All components can be stowed, yet are convenient to access.

9. Situational Awareness – Manage the environment, equipment and team, giving equal attention to each, never becoming fixated or inflexible. Head up, eyes open, and brain on.

10. The Proper Training and Experience for the Dive – Have the appropriate training to ensure consistent protocols and skills for the dive and understand the potential hazards. This will ensure the correct starting point to build experience.

The UTD Certification Philosophy

UTD Certification effectively ensures that Instructors and Students who have completed the certification process have met the highest set of standards and procedures as set by UTD International and that they adhere to the ethos of Unified Team Diving (UTD) philosophy. Students can be assured that Instructors displaying this UTD Instructor status will have undergone an extensive UTD Instructor Certification program and have received the highest quality instructor-training. Each UTD Instructor will provide students with an educational structure that is in line with UTD educational philosophies and methodologies.

Although UTD has roots in the Hogarthian/DIR equipment configuration and diving philosophy, the certification process is more an instructional path/methodology that leads the diver/instructor to a "Unified Team Diving" approach and ultimately makes them “A Thinking Diver”.

We define a “thinking diver” as one who understands the aquatic environment, is aware of the team and equipment, responds calmly to new situations, is proactive rather than reactive, and enjoys diving for the sheer pleasure of it.

The advantage of seeking out instructors carrying the UTD Certification is that by doing so you will ensure that wherever you train in the world, whatever course you take, you can be certain that all the UTD training you have received to date or will receive in the future will be consistent and compatible with UTD/DIR/Hogarthian approach to diving. This will ensure you are consistent within your team, education and experience, and diving practices.

Overall UTD Teaching Philosophies

UTD Teaches the principles of a unified team approach in:

- The Core Principles (UTD Ethos)
- Online Classroom
- Equipment configuration
- In-water skills and methodology
- Diving practices
- Thinking diver

UTD was born in the DIR/Hogarthian equipment configuration and diving principles, but goes above and beyond by not only incorporating many of the in-water skills and techniques from cave, wreck and tech diving, but by taking the diver to the next level and truly creating “A Thinking Team.” UTD has continued to develop and refine these skills and principles through the years. This combination formulates the highest set of unified team diving principles and standards that has covenants and suggestions for the diver/instructor alike to apply to their diving, allowing them to dive within a Unified Team.

1.2 Core Teaching Principles

At the core of the UTD Educational System are these teaching principles:

- Develop comfortable, competent and confident divers through providing the highest quality online classroom materials and Online Classes combined with the industry’s top trained and qualified instructors.

- Provide the foundational skills and building blocks that will safely guide the student through critical skills and stress management, ensuring the student reaches his or her own potential, **slowly** polishing and refining their in-water, skills ultimately enabling them to develop a wealth of experience within their personal limitations.

The UTD Educational System uses these Teaching Principles:

- Principle of Primacy - First thing a student learns is the core
- Principle of Recency – Last skills you practiced you will remember the most
- Principle of Repetition – Repetition and muscle memory (Rote learning)
- Principle of Readiness – Why are you learning this
- Principle of Intensity - Intense learning situation is remembered well
- Principle of Effect - What effect does my current action have

UTD Training Ensures Consistency Within:

- Team
- Environment
- Equipment
- Each course step

Use of the "Small Building Block" approach:

- Training steps are long enough to be beneficial to the learning process and short enough to ensure the student does not get overwhelmed or burnt out.
- Three (3) day segments (24 training hours) are the general recommended class steps.
- Practice, experience, and training dives are required between each of the steps.
- Meaningful feedback is completed after each dive and day of diving.
- All in-water skills and classes are video-taped to ensure maximum feedback.
- A Core Online Classroom is developed by the student completing the online classroom course work prior to showing up for the class. A certificate of completion of the online portion must be presented to the UTD instructor prior to attending any UTD certified class.
- Having a core Online Classroom enables the UTD instructor to focus his or her energy and time on in-water skill development, refinement and evaluation rather than tedious lectures that can be completed in the students' personal time.

Some other considerations for UTD teaching principles:

UTD classes are designed to develop skillful, confident, comfortable and competent divers. To this end critical skills training is heavily incorporated to both ensure the student is capable under pressure but can also demonstrate the ability to be "A Thinking Diver," not simply an underwater robot searching for the correct answer.

UTD certified instructors are exemplary divers and must always be in the water with their students, in direct supervision, demonstrating good judgment and skills ensuring the students do not become reliant on the instructor. Instructors will use a variety of teaching techniques and demonstrations but will also use "shadow diving," allowing each UTD instructor to safely employ critical skills training while remaining in control and evaluating the students' in-water ability to make proper judgments.

Diving is an extremely risky activity. Students will be made fully aware of the risks and hazards even at the cost of hurting the students feelings. Direct, honest, insightful and tactful debriefing should be used without sugar coating, especially when discussing risk vs. benefit and students' ability to recognize risks.

Developing knowledgeable, skillful, demanding yet cautious instructors and divers who set the bar. They are exemplary divers and role models.

UTD certified classes are demanding classes that ensure students perform at their optimum even while under extreme stress.

Flawless skills and unfaltering stress management are the core to survival.

Training Steps

Student development and basic class structure is broken into three steps.

1. The introduction, demonstration and practice of the essential skills, while developing the student's overall awareness. This step is conducted in a controlled environment while the instructor takes the time to *teach* the student, NOT evaluate them. This is the initial training step and skills learned should be repeated, practiced and developed before continuing.

2. The refinement and continued development of skills under "artificial stress" created by the UTD instructor but while still in a controlled environment. This is essentially a simulator that allows the instructor to push the students skill and performance to a new level. This step is of utmost importance in developing student ability to think under pressure and therefore begin the road to becoming a "thinking diver." These are termed critical skill dives.
3. The experience dives allow the instructor to evaluate the students performance in actual dive conditions. The instructor is specifically looking at the students' ability to plan and execute a safe dive.

1.3 Training Process and Definitions

The UTD Standards and Procedures are reviewed annually and updated based on recommendations by the UTD International Board of Advisors (BOA). UTD Instructors' input and recommendations on Standards is encouraged and should be submitted in writing to the BOA. The BOA will review recommendations and supporting arguments before final approval and implementation or denial. The BOA reserves the right of final authority on Standards and Procedures, with all revisions approved by the BOA.

Overall Process

- No standards or procedures of UTD may be violated.
- All UTD Instructors involved with any Diver Training Program and/or Dive Leadership Program/Qualification are considered representatives of UTD, regardless of whether or not the class is or is not a UTD certified class or is of Agency Affiliation or Program.
- All Instructors and Divemasters must provide proof of insurance by an accepted insurance program. Instructors teaching a class shall treat as students all persons diving under the Instructor's or Divemaster's direct supervision or escort.
- Specified student to instructor ratios will be maintained so as to limit students and other divers who are under the instructors' supervision. Instructors, Instructor Trainers, Divemasters, and Interns not complying with the above requirements are considered in violation of UTD Standards and Procedures.
- UTD Certification will not be awarded to students not trained or meeting the UTD Standards and Procedures.

Registration and screening

All students taking any UTD International, LLC Certified Course must:

- Submit Online and to the Instructor a printed and signed copy of a UTD registration forms detailing diving history.
- Submit Online and to the Instructor a printed and signed copy UTD wavier and release form.
- Submit Online and to the Instructor a printed and signed copy a standard Medical Form.

UTD Instructors are required to maintain copies of the above forms for a period of no less than five years.

Preparations by student

- All Students taking any UTD International, LLC certified Class must:
    - Complete the online classroom materials found on the website that are appropriate to course level they seek.

- Complete, prior to attending first day of class, the online classroom examination. After review with your instructor and a grade of 100% understanding, the answer sheet will be signed and submitted by the student to the Instructor.
- Print and bring certificate of completion of your online classroom materials to your UTD Certification Class.
- Acquire other relevant reading materials and/or DVD's from UTD International LLC.

Definitions Relevant to Standards and Procedures

Confined Water means:

- Depth less than 30'/9m
- Visibility is sufficient to see ALL students in class at the same time
- No overhead environments
- Daylight, or external flood lights to produce enough light to simulate daylight
- Calm surface with no waves large than 3ft/1m
- No current (less than 1/4 knot)

Open water

- Conditions which are outside of Confined water definitions

Training Dives

- First conducted in Confined water and then moved to Open water environments
- New skills are learned and practiced and/or critical skills training is performed

Experience Dives

- Dives which are conducted without new skills being presented or critical skills training being conducted
- All experience dives will be conducted within agency's limitations
- Allow instructors reasonable control over students

Evaluation

UTD Certification (Pass) – Receive a UTD Certification Card (C-Card)

In order to receive a UTD Certification (Pass) and receive the UTD Certification Card (C-Card) students must receive a final evaluation of 3 or higher on every item on their final evaluation form.

Not UTD Certified – Does not receive a UTD Certification Card (C-Card)

The student did NOT receive a grade of 3 or higher on every item on their UTD final evaluation or 100% after review of their written examination.

Final Evaluations

UTD Instructors are required to give a final written evaluation detailing the students' overall score. UTD Instructors must note at least three positive things for the student and any negatives, along with a written description of what exactly caused the Not UTD Certified rating if such was giving.

Evaluation Scale

Grade 1: Not a Passing grade. (No Certification Awarded) Complete failure and unsafe.
Grade 2: Not a Passing grade. (No Certification Awarded) Needs a lot of work.
Grade 3: Passing grade. (UTD Certification Awarded) Needs improvement.
Grade 4: Passing grade. (UTD Certification Awarded) Did extremely well .
Grade 5: Passing grade. (UTD Certification Awarded) Achieved excellence.

UTD Diver Certification

While UTD Certification is ultimately an instructor's decision, students can improve their chances of qualifying by reviewing the performance objectives of a given class, completing the online classroom and by practicing the skills that will most directly impact on their ability to qualify. At the end of training, instructors may either: a) decide that a student meets UTD standards and they have passed and will receive UTD Certification at their level of training, or b) decide they are not UTD Certified and that they need to continue to practice and strive to meet the rigorous set of UTD standards.

These assessments take the form of:

1. UTD Certification
2. Not UTD Certified

A student has 1 year (12 months) from the day of completion of their course to practice and strive to earn UTD Certification. They can then ask to be re-evaluated (at additional expense as set by the instructor) by any UTD instructor. Before any additional UTD Certification training at a higher level can be pursued, students must meet the UTD standards of the *current* course in question and have their "NOT UTD Certified" changed to a "UTD Certified" i.e. if a student is provisional following a Rec 2 class, that student may not move on to Rec 3 until meeting the standards for a Pass in Rec 2.

UTD Training Categories

1. Zuba Diver
The Zuba training category is for those seeking an underwater experience without the burden of a self-contained system. Zuba puts the breathing cylinder in a float on the surface with the Zuba Diver connected via a 20'/6m hose. In confined water the system can be used with nothing more than a mask. in open water, divers wearing a Z-System can reach depths of 20'/6m.

There are three levels of Zuba – Zuba Open Water, for all divers over 16 years, Zuba Junior Open Water Diver for divers 10-15 years, and Zuba Confined Water Diver for children aged 6-9. Both the Junior Open Water Diver and the Zuba Confined Water Diver must always be under supervision of an parental guardian.

2. Recreational Diver
This training category is designed for non-technical diving individuals seeking individual or advanced training in the essentials of sound recreational diving practice; recreational diving being defined as diving in non-overhead environments at depths at or above 130'/39m. UTD's recreational courses, then, are not designed to teach the skills required by overhead environments; e.g., caves, ice, staged-decompression, wreck penetration, or diving below 130ft/ 39m. These subjects may be discussed in recreational classes, but should not be construed as training in these specific areas.

Recreational courses are designed to cultivate the essentials of safe diving practice and can be profitable to any diver as a platform from which to begin the exploration of the underwater environment. Currently the courses are Openwater, Recreational 1, Recreational 2, Recreational 3, Essentials of Recreational Diving, and Scooter 1.

3. Technical Diver
This training category is designed for divers seeking training in technical diving. Technical diving goes beyond the domain of recreational diving by exposing divers to, among other things, more equipment demands, greater depths, longer diving exposures, extended decompression, and to the requirements of mixed gases use. This necessitates additional knowledge, skills, and equipment not found in recreational diving. These courses are designed to produce a competent and skillful technical diver, one who is armed with a sound theoretical understanding of the intricacies of technical diving, as well as excellent in-water skills. Currently the courses are Essentials of Tech, Technical Diver 1, Technical Diver 2, and Tech Gold.

4. Trimix Diver
The Trimix category moves the student into the realm of deeper dives, adding complexity through the use of multiple decompression bottles, multiple stage bottles, and longer decompression. The trimix courses bring the student deeper through a methodical progression of learning, first to 200'/60m in Trimix Diver 1 then to 250'/75m in Trimix Diver 2. Trimix Gold is unlimited open circuit.

5. Rebreather Diver
The Rebreather category trains divers in the Essentials of Rebreather diving at recreational depths, and certifies divers in the use of pSCR and mCCR equipment in Recreational, Technical, and Trimix levels.

6. Overhead Diver
This training category is designed for divers seeking training in wreck/cave environments. Wreck & Cave diver training focuses on the skills and knowledge most specifically geared toward wreck/cave diving penetration. Wreck/Cave training does not necessarily require a

multitude of overtly technical skills, e.g., multiple breathing gases or multiple stage bottles. One can safely learn to dive in wrecks/caves without excessive depth and or decompression requirements. Currently the UTD overhead courses are the Essentials of Overhead, Overhead Protocols – The Fundamentals of Cave and Wreck Diving, Wreck Penetration 1, Wreck Penetration 2, Wreck Penetration 3, Cave Diver (1, 2, Gold), Scooter Cave Diver, Rebreather Cave Diver, Technical Cave Diver, Advanced Side Mount Cave Diver, Expedition Cave Diver.

7. Diver Specialties
This training category currently describes the Standards and Procedures for specialty courses including, but not limited to: Side Mount Techniques, Scooter 1 and 2, Ratio Deco, Nitrox Diver, Rescue and Emergency Procedures, Dive Master, Technical Gas Blender, Cylinder and Valve Technician, Underwater Survey and Scubatics Competition Diver. Mini's include Dry Suit, Doubles, Stage Bottle, and Guideline.

Training Procedures

Below are outlined a core set of standards that uniformly govern all UTD Certified courses and the representatives that are engaged in teaching them. In addition to these, specific categories of training, and specific levels within these categories, are governed by an additional set of standards that are outlined in the relevant course sections. Such common standards ensure that UTD certified educational courses remain consistent with respect to essential skills and basic information, and that each specific training category will build particular skills and knowledge on a common foundation.

1. An Active Status UTD Instructor, qualified to teach the level of training being conducted, is to be present and in control during any and all activities, including academic reviews and in-water activities.

2. Experience portions (experience dives) of Recreational or Technical classes may be taught in the overhead environment, provided that the following requirements are met:

UTD Certified Instructors and students engaged in experience dives must be qualified and certified in the skill or environment of the diving undertaken. For example, experience dives done in the wreck environment required that students be certified wreck divers and are limited to the students' individual certifications/credentials.

UTD Certified Instructors must ensure the student meets the UTD minimum number of dives in order to receive a UTD Certification.

The required minimum number of dives for one level of training must be completed before proceeding to the next level of training for that environment. Dives that fulfill the requirements of one level of training may not be credited toward any other level; also, dives from one course may not be credited towards fulfilling the required dives of another course. Students may not take two courses concurrently (at the same time).

1. Students must receive UTD Certification (Full) for a level of training before proceeding to the next level of training.

2. Students should demonstrate at least 25 experience dives at the level of their certification prior to continuing on the next training level.

3. UTD Certified Instructors conducting a particular course are required to use the minimum equipment required of that course.

4. UTD Certified Rebreather Instructors conducting a particular rebreather course are required to own that configuration of Rebreather, have at 25 hours on the unit in the six (6) months prior to conducting the course, and use that version of the rebreather during the course.

5. All decompression and/or stage cylinders are to be clearly labeled in accordance with the “Cylinder Marking Standards” set forth in the Cylinder Marking Section.

6. Visibility is defined as the minimum distance in which divers can identify one another and communicate effectively using hand and light signals.

7. UTD Certified Instructors should refrain from conducting training dives and drills in areas that contain:

    a. Delicate or environmentally sensitive formations
    b. Structures that are in relatively pristine condition
    c. Sensitive biological or archeological resources.

8. UTD Certified instructors should consider the impact of training on the site that they select, choosing sites appropriate to the current student skill and training level. Instructors should refer to the recommended locations for certain training drills and are encouraged to seek the advice of local divers and instructors when conducting training in an area with which they are not familiar.

1.4 General UTD Training Limits

The following limits apply to ALL levels of training (course specific limits can be found in the relevant sections):

PO2 Limits

All training dives are to be conducted at an average working PPO2 of 1.2. The maximum PPO2 for any training dive is to be no greater than 1.4. Decompression or resting segments may incur a PPO2 of 1.6. Standard industry variations to these limits are acceptable.

Equivalent Narcotic Depth Limits

Maximum Equivalent Narcotic Depth for all training dives is 100 feet/30 meters/4 ATA (END defined by the equation of END = (1-FHe) x ATA’s and assumes that O2 is narcotic.

Procedures for Demonstration and Critical Skills

UTD students will experience a variety of different levels of skills during training. Level one skills, or demonstration skills are single, non-compounded, non-surprise skills including, but not limited to out of air drills, simulated valve failures, and loss of mask that are demonstrated to the instructor. Level two and above skills may be surprise and compounded, at which point they are considered critical skills; level three skills are multi-compounded; and level four skills are complex multi-compounded. As students progress through the UTD programs, they will experience all skills first as level one before progressing to higher level skills.

Other Certifications

Another agency’s certifications may *not* be awarded to a student in the case a student did not pass the UTD Certification process – if the student has met UTD standards and procedures and

has successfully earned a UTD Certification, then any additional certifications from other agencies may be awarded, providing the student has also met that certification agency's standards and procedures. The student can then receive both a UTD certification (C-Card) and the certification of the other certifying agency.

Issuing C-cards from other certification agencies following a UTD class.

1. UTD instructors who enroll students in a UTD class may only issue comparative certification cards from another certifying agency if the student meets all standards for the UTD class and receives UTD certification. The instructor may not issue another agency's certification in lieu of UTD certification if the student does not pass the UTD class.
2. UTD Instructors may only teach UTD classes for which they are approved and certified to teach.
3. UTD Instructors must offer a student a complete evaluation at the completion of every UTD certification class. If the student does not pass or complete the class, that evaluation must state the reasons why.

Side Mount Prerequisites

All UTD classes may be conducted in a UTD Side Mount configuration provided all students participating in that class have taken and passed a UTD Essentials of Recreational/Tech/Cave Side Mount class and gained appropriate experience at their current level of certification. In a side mount class that teaches critical skill valve failures, all students must be configured in side mount. In a non-critical skills class, students may be in either Z-System side mount or back mount.

Rebreather Prerequisites

All UTD classes may be conducted in a UTD rebreather configuration provided all students participating in that class have taken and passed a UTD Essentials of Rebreather or mCCR level 1 class and gained appropriate experience at their current level of certification prior to advancing to a higher certification in the rebreather configuration.

Teaching and Rebreathers

UTD Certified Instructors may not teach UTD Certified courses in which students are using open circuit scuba equipment while using any type of rebreather (CCR or SCR) with the following exception: certified UTD rebreather instructors may teach a UTD rebreather class or the non-critical skills training dives (experience dives) of a UTD open circuit class while using a rebreather.

Steel Cylinders

Use of heavy double steel tanks/cylinders is prohibited for UTD Certified instructors and students unless divers concurrently wear a balanced exposure system such as a dry suit. Steel tanks that are positively buoyant with 500psi/35bar are excepted.

Steel Stage Bottles

No student or instructor who is enrolled in a UTD certification course may utilize steel cylinders bottles in the open water without prior approval from the training director. Steel cylinders that are positive in the water with 500 psi/35 bar are excepted.

1.5 General Diving Skills

The following Diving Skills are required in ALL UTD Certified courses, with an Final evaluation Grade of Three (3) (satisfactory) or better for each skill. Any additional and/or course specific diving skills, as well as any deviation from a particular diving skill, will be listed under the appropriate section for the specific course.

1. Demonstrate proficiency in safe diving techniques – this would include pre-dive preparations, in-water activity, and post-dive assessment.

2. Demonstrate awareness of team member location and a concern for safety, responding quickly to visual cues and dive partner needs.

3. Efficiently and comfortably demonstrate how to donate air to an out of air diver in multiple air-sharing episodes, with one or more experiences to include a distance of at least 30 feet/9 meters.

4. Demonstrate a safe and responsible demeanor throughout all training.

5. Students with unsafe attitudes, or who demonstrate bad diving habits, may not qualify to be UTD Certified Divers. Safe and Competent UTD *Training* is purchased upon enrollment by the student. UTD Certification is *earned* through the student's performance and knowledge demonstrated throughout the courses – not through purchasing the training.

6. The UTD Certification course must be completed within 1 year (12 months) from the starting date, unless otherwise specified in the Program Standard.

All UTD Certified Instructors must train students to the level defined in the UTD Standards and Procedures. UTD Standards and Procedures are well thought out as to students' needs, and address the UTD Building Block educational Methodology. UTD Certified Instructors are encouraged to issue UTD Certification to students only when those students have met the UTD standards of the level they are pursuing to the satisfaction of the UTD instructor.

1.6 General Prerequisites for all UTD Courses

The following are Course Prerequisites for all UTD Courses (any additional and/or course specific course prerequisite, as well as any deviations from the following, will be listed under the appropriate section of the specific course):

1. Students must have completed, printed and submitted to headquarters the online registration located on the UTD website, including student registration/dive history, medical information, liability release forms.

2. If any medical conditions exist students must have a doctor's sign-off prior to the start of any water work. Divers must obtain an authorization for the use of prescription drugs by a physician and must have such authorization approved by a UTD representative prior to the onset of diver training. Birth control pills are excepted.

3. Students must have completed the appropriate online or printed classroom materials, completed the examination prior to attending first day of class and, after review with the instructor, received a 100% understanding of the examination.

4. Students must print and bring the registration and other forms as well as the certificate of completion of the Online Classroom materials to the first day of class. These forms will be reviewed and signed by the student before the start of class.

5. The instructor may request additional information from the student, which may include a complete diving resume.

6. Students must be physically fit, mentally stable, and clearly focused.

7. Must hold DAN dive medical insurance or equivalent (Open Water and Zuba excepted).

8. Smoking is not permitted during training activities.

1.7 Cylinder Marking Standards

1. All Dive Cylinders should have a current visual inspection and hydrostatic test as detailed by specific country regulations. Only required stickers will be affixed to the cylinders and will be placed so as not to detract from the MOD marking on the tank.

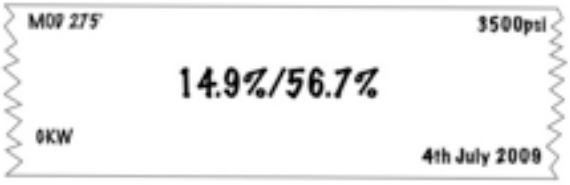
2. All decompression cylinders are to be marked with MAXIMUM OPERATING DEPTH (MOD) in number approximately 3 inch/7.5 centimeter high. These numbers must be easily read by both the diver and the teammate.

3. In countries where the metric system is widely adopted, this depth is to be in METERS and indicated by the use of “M” after the depth, e.g. a decompression cylinder containing Nitrox with a 50 % Oxygen content will be marked 21 M to indicate the maximum depth of twenty-one meters.

4. In countries were the imperial system is the norm, the cylinder marking will be in FEET and indicated by the use of ‘ after the MOD, e.g. a decompression cylinder containing Nitrox with a 50% Oxygen content will be marked 70‘ to indicate the maximum depth of seventy feet.

5. In all countries, in addition to the MOD, Oxygen cylinders are to be marked horizontally down the cylinder with the word “OXYGEN,” in approximately 3 inch/7.5 centimeter high letters. No additional Nitrox stickers or indication that the cylinder does not contain air are required.

6. All Scuba cylinders must have a small sticker near the tank neck that lists gas contents, date the gas was analyzed, the initials of the person who analyzed the gas, the MOD if applicable, and the current pressure in psi or bar. Oxygen and Helium contents must be noted to one decimal point, with oxygen content first, followed by helium if applicable, i.e. 21.2/35.4 indicates 21.2 percent oxygen and 35.4 percent helium. A nitrox mix will only have the oxygen content on the label.



2.0 Quality Assurance

The UTD quality assurance system is the checks and balance system for both students and instructors. Specifically, the following UTD forms are available for quality assurance: instructor and leadership evaluations, student evaluations, and student feedback forms.

UTD Instructor Evaluations

UTD students can find the links to a UTD student feedback form on the UTD website and are asked to fill this out following the completion of their training.

Instructor Performance Reviews

Instructor performance is regularly reviewed on the basis of a) instructor evaluation forms, and b) a peer review program that encourages instructor cooperation and requires them to report any practices not in keeping with UTD's standards to UTD headquarters.

Instructor and Diver Membership Renewals

To maintain currency in all facets of diving theory and practice, UTD instructors are required to renew their UTD Memberships annually. UTD divers are also strongly encouraged to renew annually. Members facing a grievance or complaint must apply to the UTD Board of Advisors for permission to renew.

Complaints

All complaints lodged against UTD instructors will be review by UTD's Board of Advisors. The Board of Advisors will make a final decision regarding the status of the instructor.

Complaint Submission

Complaints may be filed against any UTD Instructor or UTD member. All complaints must reference a violation of a specific item in the UTD Standards and Procedures. All formal complaints must be submitted within three (3) months of the alleged violation or the complaint will not be considered by The Board of Advisors.

To submit a complaint against a UTD Instructor or Member:

All complaints must be in writing and submitted to the Director of Quality Control at UTD Headquarters (qc@unifiedteamdiving.com). The statement must include:

1. Name and contact information
2. The date, time, and location of event or incident.
3. An eye-witness account of the incident or event and the names and contact information for any other witnesses.

Complaints may be submitted by registered mail or traceable carrier (such as Federal Express) to the UTD Headquarters address. Complaints not meeting the above requirements or submitted verbally or anonymously will not be investigated.

Complaint Procedure

1. Once a complaint is received the Board of Advisors will review the complaint and a written summary will be forwarded to the instructor or member in question. The charged member(s) must respond in writing within 30 days (if residing in the United States, or 45 days if outside of the United States).

2. If the charged member does not respond to the written complaint, he/she will be suspended until the investigation is complete. However, the investigation may not begin until a response letter is received by the Board of Advisors.

Upon receipt of the response, Board of Advisors may opt to dismiss the complaint, resolve by negotiation, or immediately suspend the member in question.

Penalties and Remedial Actions

UTD's Board of Advisors may issue a decision or agree to a resolution of the complaint by:

1. Private censure
2. Public censure
3. Educational review
4. Defined probationary period
5. Defined suspension
6. Revocation of membership and/or teaching privileges

Rights of Appeal

If a member presents new evidence regarding a formal complaint following an unfavorable decision by the Board of Advisors, that member may formally ask for a new hearing of the matter by the same Board of Advisors.

Conduct Policies and Procedures

1. UTD Members and Instructors must demonstrate financial responsibility when transacting business with UTD.

2. UTD Instructors must process student Evaluation and Certifications in a reasonable and timely fashion, in no case longer than 30 days following completion of a class.

3. All correspondence within the online Instructors' forum is to be confidential and private. This privacy is necessary to allow for freedom of expression between instructors. Any instructor who knowingly allows these discussions to become public may be subject to disciplinary action as outlined in the section above, "Penalties and Remedial Actions."

4. All UTD instructors will maintain an appropriate professional attitude during any UTD certified activity.

5. All UTD Members and Instructors are bound by the Standards and Procedures outlined in this document and the S&P of their respective agencies if they are planning on issuing certification cards from those agencies.

6. All UTD instructors must maintain liability insurance naming UTD as additionally insured. If an instructor leaves UTD, this insurance must remain in place for a period of five years after the departure date.

7. UTD instructors must maintain DAN professional insurance or equivalent.

8. If a UTD instructor is being formally investigated by any one of their certifying agencies, including UTD, he/she may be suspended as a UTD instructor until proof is provided that the issue is resolved within the instructor's agency. If a UTD instructor is named in a law suit, either criminal or civil, based on actions as a dive professional, that UTD instructor will be suspended until that suit has been settled. The instructor in question may submit evidence and petition the UTD Board of Advisors in writing to waive the suspension prior to a settled outcome. If a UTD instructor is found responsible in a law suit, that instructor will be suspended immediately and may appeal to the board to waive the suspension. The Board of Advisors will respond to all petitions within sixty (60) days and all Board of Advisors decisions on the petition are final.

9. No UTD Instructor shall make any public derogatory statement or comment about UTD International, UTD training procedures, UTD Standards and Procedures, or any other UTD Instructor. Any such comments regarding UTD training, methodologies, and instructors are to be presented, in writing, to the UTD Board of Advisors. These comments will be held in strict confidence and, if warranted, the Board of Advisors will investigate any and all allegations. Any UTD instructor found in violation of this paragraph may be suspended as a UTD instructor.

Records

UTD headquarters will maintain the following records (if applicable) for each instructor, student, and UTD Certified class for up to 5 years after the class (these documents may be archived in electronic form):

1. Student Registration
2. Student Liability & Release & Assumption of Risk
3. Student Medical Questionnaire
4. Accident Report
5. Instructor Registration
6. Instructor Liability & Release & Assumption of Risk
7. Instructor Agreement
8. Course Completion Form
9. C-Card Replacement Form
10. Instructor Evaluation Form
11. Membership Registration
12. Online Classroom Forms and Certificates

3.0 Standards and Procedures for UTD Compliant Diver Classes

3.0-1 Minimum Equipment for all UTD Classes
101 Zuba Open Water Diver
102 Zuba Junior Open Water Diver
103 Zuba Confined Water Diver
103.5 Zuba Supervised Diver
104 Extreme Scuba Makeover
105 Open Water Diver
110 Recreational Diver 1
112 Recreational Diver 2
114 Recreational Diver 3
120 Ratio Deco
122 Nitrox Diver
123 Dry Suit Mini
124 Zuba Dry Suit Mini
125 Rescue and Emergency Procedures
126 Scooter 1 - Speciality
128 Scooter 2 - Speciality
132 Scubatics Competition Diver - Speciality
140 Annual Dive Review
142 Crossover, Experience, and Evaluation Dives
144 Online Only Class

150 Essentials of Recreational Diving
152 Essentials of Technical Diving
160 Essentials of Overhead Diving
165 Essentials of Rebreather Diving
170 Essentials of Scientific Diving
180 Essentials of Recreational Side Mount Diving
182 Essentials of Tech/Cave/Wreck Side Mount Diving
190 Side Mount Mini

200 Technical Diver (Tech 1 & 2)
210 Technical 1 Diver
212 Technical 2 Diver
220 Technical Diver Gold
225 Technical Stage Mini
250 Technical Gas Blender
255 Cylinder and Valve Technician
260 Regulator Repair and Field Maintenance

300 Trimix Diver (Trimix 1 & 2)
310 Trimix 1 Diver
312 Trimix 2 Diver
320 Trimix Diver Gold

400 Overhead Protocols
401 Cave Diver Program
410 Cave Diver 1
412 Cave Diver 2
420 Cave Diver Gold
430 Technical Cave Diver
440 Rebreather Cave Diver
450 Scooter Cave Diver
460 Advanced Side Mount Cave Diver
470 Expedition Cave Diver

480 Wreck Penetration 1 Diver
482 Wreck Penetration 2 Diver
510 mCCR 1 Rebreather Diver
512 mCCR 2 Rebreather Diver
514 mCCR 3 Rebreather Diver
520 pSCR 1 Rebreather Diver
522 pSCR 2 Rebreather Diver
530 pSCR Gold Rebreather Diver
590 The UTD Expedition Diver

601 Divemaster
605 IDC Prep
610 OW/Foundational Instructor
615 Side Mount Instructor
620 Tech Instructor
630 Trimix Instructor
640 Cave Instructor
650 Wreck Instructor
660 Side Mount Instructor
670 pSCR Instructor
680 mCCR Instructor

710 Foundational IT
720 Tech IT
730 Trimix IT
740 Cave IT
750 Wreck IT
760 Side Mount IT
770 pSCR IT
780 mCCR IT

3.0-1 Minimum Equipment for all UTD Classes

All UTD open circuit certification classes can be conducted in either back mounted - single or double cylinders, or side mounted - single or double cylinders as appropriate or as otherwise indicated by individual course standards.

UTD Rock Bottom gas planning rules apply to ALL UTD classes.

3.0-2 Minimum Equipment for UTD Back Mount Open Circuit Classes

1. Tanks/Cylinders: Back mounted single or double cylinders.
2. Regulator system: Primary second stage with a donateable 5’ or 7’ hose stowed in a wrapped fashion around the diver’s neck, and a backup second stage bungeed around the diver’s neck in a necklace fashion.
3. Buoyancy Compensator/Trim Device: rear inflation-type/wing or trim device
4. Backplate and harness system
5. At least one depth-measuring device
6. At least one time-keeping device
7. Compass
8. Mask and fins (fins must be non-split)
9. Minimum of one cutting device
10. One spool with minimum 70’/21m line and one surface marker buoy
11. optional: One primary light and one backup light (two backup lights for overhead)
12. Notebook and writing utensil
13. Exposure suit appropriate for the duration of exposure

3.0-3 Minimum Equipment for UTD Side Mount Open Circuit Classes

1. Tanks/Cylinders: Side Mounted pluggable single or double cylinders with appropriate stage rigging and quick disconnects.
2. Low pressure distribution system such as a Z-Distribution Block or Z-Isolator Manifold
3. Regulator system: Primary second stage with a donateable 5’ or 7’ hose stowed in a wrapped fashion around the diver’s neck, and a backup second stage bungeed around the diver’s neck in a necklace fashion.
4. Buoyancy Compensator/Trim Device: rear inflation-type/wing or trim device
5. Z-System harness or equivalent
6. At least one depth-measuring device
7. At least one time-keeping device
8. Compass
9. Mask and fins (fins must be non-split)
10. Minimum of one cutting device
11. One spool with minimum 70’/21m line and one surface marker buoy
12. optional: One primary light and one backup light (two backup lights for overhead)
13. Notebook and writing utensil
14. Exposure suit appropriate for the duration of exposure

3.0-4 Minimum Equipment for UTD Rebreather classes

1. mCCR or pSCR configured as a UTD MX-Series rebreather.
2. Manual gas addition system.
3. Oxygen injection solenoids are disallowed.

4. Tanks/Cylinders/Deco Bottles: Diluent gas appropriate to dive plus standard open circuit bailout. All deco and stage cylinders are pluggable with stage rigging and quick disconnects.
5. Regulator system: Primary second stage with a donateable 5’ or 7’ hose stowed in a wrapped fashion around the diver’s neck and clipped to the right chest harness d-ring. The backup second stage is co-located with the bail out valve on the mouthpiece.
6. Buoyancy Compensator/Trim Device: rear inflation-type/wing or trim device
7. At least one depth-measuring device
8. At least one time-keeping device
9. For mCCR at least one display that reads PPO2 from three individual O2 sensors
10. For pSCR at least one display that reads PPO2 from at least one O2 sensor
11. For mCCR one PPO2 Head Up Display attached to the front of the loop
12. Compass
13. Mask and fins (fins must be non-split)
14. Minimum of one cutting device
15. One spool with minimum 70’/21m line and one surface marker buoy
16. optional: One primary light and one backup light (two backup lights for overhead)
17. Notebook and writing utensil
18. Exposure suit appropriate for the duration of exposure

3-**101 Zuba Open Water Diver**

Purpose

The Zuba Open Water course (Z-Float Underwater Breathing Apparatus) is an entry level class designed to teach **NON**-certified Zuba divers to be safe and comfortable while enjoying the wonders of our oceans, lakes, rivers, pools and other waters. This class is structured to prepare adults, 16 years and older, for Zuba diving without supervision of a Dive Master or Instructor. The class certifies the student in the use of proper equipment and proper Zuba diving techniques. The class incorporates Zuba diving theory, knowledge and equipment configuration with precise Zuba diving skills and emergency procedures. This class not only teaches you how to use the equipment, but it teaches you how to be a safe and environmentally aware Zuba diver. Upon completion of the Zuba Open Water certification, a diver can use an independent Z-Float system, can purchase or rent Zuba equipment, and receive the necessary air fills from any Zuba Diving retailer.

The Zuba Open Water course is normally conducted over a 2 day period, and cumulatively involves a minimum of 10 hours of instruction including academics, pool/confined water, and open water dives to a maximum depth of 20'/6m using air as a breathing gas.

Your Zuba equipment and certification are consistent and upgradable to become a fully certified SCUBA Open Water Diver (Self Contained Underwater Breathing Apparatus.) For more information on becoming a certified Zuba Diver check out the UTD Open Water class or Recreational Diver Level 1.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age 16 years.
3. Must be able to swim a distance of at least 20 feet/6 meters on a breath hold.
4. Must demonstrate a swim of at least 50 yards/45 meters in less than 10 minutes without stopping and 5-minute survival swim/float.

Course Limits

1. Student to Instructor ratio is not to exceed 10:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions.
2. Maximum training depth 20'/6m.
3. Each diver uses an independent Z-Float system
4. Standard gas is Air (21% O2)
5. Maximum three Zuba training dives in one day, all dives to be during daylight hours
6. No overhead environment diving

Course Content

The Zuba Open Water Class is designed to provide a introduction to Zuba equipment configuration, basic diving physics and physiology, situational awareness and understanding the aquatic environment.

The in water skills will first be conducted in a confined water environment prior to entering the open water. These skills will include, but not be limited to, snorkeling techniques, buoyancy, trim, propulsion, basic 6, and air sharing.

Course requirements include two hours of academic review and two hours of confined water

training, a minimum of one skin dive and two open water dives, one of which will be an orientation dive, one will be skill dives as defined in the standards and procedures.

Classroom Courses & Text

1. Required Online or Printed Classroom Materials – Zuba Open Water Diver
2. Zuba Open Water Diver DVD is recommended

Academic Topics

1. Equipment Configuration: mask, fins, snorkel, Z-Harness, Z-Trim Device (BCD), Z-Manifold, exposure suit, weights and weighting systems, Z-Float, flags, regulators, depth gauges, timing devices and accessories
2. Applied diving physics
3. Applied diving physiology, effects of pressure, hazards
4. Diving planning and logistics
5. Aquatic environments, topography, aquatic life, weather, hazards, boats

Land Drills & Topics

1. Snorkeling skills
2. Situational awareness
3. Buddy awareness
4. Pre-dive drill
5. Trim, buoyancy and propulsion
6. Basic 6
7. Out of Air (OOA) procedures
8. Basic navigation skills
9. Underwater communication

Required Dive Skills and Drills, Confined Water and Open Water

1. All skills and drills as outlined in the general diving skills, Section 1.5
2. Demonstrate proficiency in snorkeling procedures including swimming, duck diving, kelp diving, weighting, ear squeeze management, ascending, clearing the snorkel without lifting the head, no mask swimming, clearing the mask, and surface survival skills.
3. Demonstrate proficiency in procedures for air failures, including dependent and independent (swimming ascent) and out-of-air alternatives.
4. Demonstrate proficiency in basic-6 skills.
5. Demonstrate good buoyancy and trim.
6. Equipment familiarization, removal and replacement of weights and Zuba gear.
7. Gas-sharing scenarios to include a direct ascent.
8. Demonstrate basic underwater navigation techniques.
9. Demonstrate effective proficiency with ascent/descents.

Minimum Equipment for Zuba Open Water Diver Class

1. Z-Float with Diver Down Flag - 1 per diver
2. Single cylinder
3. First Stage with Over Pressure Valve (OPV) and QC6 Male
4. 25’/7m low pressure hose with QC6 female and QC6 male and two SS Bolt snaps
5. Z-Manifold (Distribution Block) with at least one (1) QC6 female input
6. Regulator system: Primary second stage with a donateable 5’ (or 7’) hose stowed in a wrapped fashion around the diver’s neck, and a backup second stage bungeed around the diver’s neck in a necklace fashion.
7. Z-Trim Device: rear inflation-type/wing or trim device (Buoyancy Compensating Device)
8. Z-Harness or backplate system

9. At least one depth-measuring device
10. At least one time-keeping device
11. Mask and fins (fins must be non-split)
12. Exposure suit appropriate for the duration of exposure
13. Weighting system appropriate to be neutrally buoyancy at surface

3-102 Zuba Junior Open Water Diver

Purpose

The Zuba Junior Open Water course (Z-Float Underwater Breathing Apparatus) is an entry level class designed to teach **NON**-certified junior Zuba divers to be safe and comfortable while enjoying the wonders of our oceans, lakes, rivers, pools and other waters. This class is structured to prepare young adults, from 10 to 15 years old, to safely Zuba dive under the direct supervision of their parental guardian. The class instructs the student in the use of proper equipment and proper Zuba diving techniques. The class incorporates Zuba diving theory, knowledge and equipment configuration with precise Zuba diving skills and emergency procedures. This class not only teaches you how to use the equipment, but it teaches you how to be a safe and environmentally aware Zuba diver. Upon completion of the Zuba Junior Open Water certification, the junior Zuba diver must dive with their parental guardian, must be tethered to the parental guardian's Z-Float, and the parental guardian must be Zuba Open Water Certified diver.

The Zuba Junior Open Water course is normally conducted over a 2 day period and cumulatively involves a minimum of 10 hours of instruction including academics, pool/confined water, and open water dives to a maximum depth of 20'/6m using air as a breathing gas.

The Zuba equipment and certification are consistent and upgradable to become a fully certified Zuba open water diver or a fully certified SCUBA Open Water Diver (Self Contained Underwater Breathing Apparatus) at the age of 16. To be upgraded from Junior Zuba Diver to Zuba Open Water Diver, the Parental Guardian must show proof and sign a sworn statement that the junior open water diver has completed 10 Zuba dives in the past 12 months. For more information on becoming a certified Open Water Zuba Diver, see the Zuba Open Water Class, UTD Open Water class or Recreational Diver 1 Class.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age 10 years.
3. Must take the class with their parental guardian
4. Must share (be tethered to) parental guardian's Z-Float
5. Must be able to swim a distance of at least 20'/6 meters on a breath hold.
6. Must demonstrate a swim of at least 50 yards/45 meters in less than 14 minutes without stopping and 3-minute survival swim/float.
7.

Course Limits

1. Student to Instructor ratio is not to exceed 10:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions.
2. Maximum training depth 20'/6m.
3. Standard gas is Air (21% O2)
4. Maximum two training Zuba dives in one day, all dives to be during daylight hours
5. No overhead environment diving

Course Content

The Zuba Junior Open Water Class is designed to provide a introduction to Zuba equipment configuration, basic diving physics and physiology, situational awareness and understanding the aquatic environment.

The in water skills will first be conducted in a confined water environment prior to entering the open water. These skills will include, but not be limited to, snorkeling techniques, buoyancy, trim, propulsion, and basic-6, air sharing.

Course requirements include two hours of academic review and two hours of confined water training, a minimum of one skin dive and two open water dives, one of which will be an orientation dive, one will be skill dives as defined in the standards and procedures.

Classroom Courses & Text

1. Required Online or Printed Classroom Materials – Zuba Open Water Diver
2. Zuba Open Water Diver DVD is recommended
3.

Academic Topics

1. Equipment Configuration: mask, fins, snorkel, Z-Harness, Z-Trim Device (BCD), Z-Manifold, exposure suit, weights and weighting systems, Z-Float, flags, regulators, depth gauges, timing devices and accessories
2. Applied Diving Physics
3. Applied Diving Physiology, Effects of Pressure, Hazards
4. Diving Planning and Logistics
5. Aquatic environments, topography, aquatic life, weather, hazards, boats

Land Drills & Topics

1. Snorkeling skills
2. Situational awareness
3. Buddy awareness
4. Pre Dive Drill
5. Trim, buoyancy and propulsion
6. Basic-6
7. Out of Air (OOA) procedures
8. Basic navigation skills
9. Underwater communication

Required Dive Skills & Drills, Confined Water and Open Water

1. All skills and drills as outlined in the general diving skills, Section 1.5
2. Demonstrate proficiency in snorkeling procedures including swimming, duck diving, kelp diving, weighting, ear squeeze management, ascending, clearing the snorkel without lifting the head, no mask swimming, clearing the mask, and surface survival skills.
3. Demonstrate proficiency in procedures for air failures, including dependent and independent (swimming ascent) and out-of-air alternatives.
4. Demonstrate proficiency in basic-6 skills.
5. Demonstrate good buoyancy and trim.
6. Equipment familiarization, removal and replacement of weights and Zuba gear.
7. Gas-sharing scenarios to include a direct ascent.
8. Demonstrate basic underwater navigation techniques.
9. Demonstrate effective proficiency with ascent/descents.

Minimum Equipment for Zuba Junior Open Water Diver Class

1. Z-Float with Diver Down Flag - shared with Parental Guardian's Z-Float
2. Single cylinder with Z-Stage Harness (Fixed or temporary) - Parental Guardian's
3. First Stage with Over Pressure Valve (OPV) and QC6 Male - Parental Guardian's
4. Two 25'/7m Low pressure hose with QC6 Female and QC6 Male and two SS Bolt snaps

5. Z-Manifold (Distribution Block) with at least one (1) QC6 female input
6. Regulator system: Primary second stage with a donateable 5’ (or 7’) hose stowed in a wrapped fashion around the diver’s neck, and a backup second stage bungeed around the diver’s neck in a necklace fashion.
7. Z-Trim Device: rear inflation-type/wing or trim device (Buoyancy Compensating Device)
8. Z-Harness or backplate system
9. At least one depth-measuring device
10. At least one time-keeping device
11. Mask and fins (fins must be non-split)
12. Exposure suit appropriate for the duration of exposure
13. Weighting system appropriate to be neutrally buoyancy at surface

3-**103 Zuba Supervised Diver**

The ZUBA Supervised Diver class is designed for someone with no diving experience but would like to do a ZUBA dive in the open water. This class is structured to prepare someone older than 10 years of age to safely experience a ZUBA dive while under the direct supervision of a ZUBA Instructor. The class involves instruction in the use of the ZUBA equipment and zuba diving techniques and incorporates basic ZUBA diving theory, knowledge and equipment use, and how to be a safely ZUBA diver in either Confined Water or Open Water. Upon completion of the ZUBA Supervised Diver class, the diver will receive a certificate of completion, after which they can continue to ZUBA dive while under the supervision of a ZUBA Instructor, but do not have to complete the pool/confined water and/or class work again.

The ZUBA Supervised Diver class is normally conducted over a 1-day period, and cumulatively involves a minimum of 6 hours of instruction including academics and 1 pool/confined water session and one Open Water Experience Dive, with a maximum depth of 20'/6m using air as a breathing gas.

The ZUBA Supervised Diver class is consistent and upgradable and one can become fully certified ZUBA Junior Open Water diver if older than 10 years of age and full ZUBA Open Water Diver if older than 16 years of age by completing the additional requirements.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age 10 years.
3. If between the ages of 10 and 15, must take the class with their parental guardian.
4. Must be able to swim a distance of at least 10'/3 meters on a breath hold.
5. Must demonstrate a swim of at least 25 yards/22 meters in less than 14 minutes without stopping and 2-minute survival swim/float.

Course Limits

1. Student to Instructor ratio is not to exceed 10:1 during land drill, surface exercises, and any direct in-water training.
2. Maximum training depth 20 feet/6m.
3. Standard gas is Air (21% O2)
4. Training and certification for Supervised Zuba Diver, meaning:
   - Maximin Depth of 20'/6m
   - Visibility is sufficient to see ALL students in class at the same time
   - Daylight, or external flood lights to produce enough light to simulate daylight
   - Calm surface with no waves larger than 1.5ft/0.5m
   - No current (less than 1/8 knot)
5. Certificate of completion allows the Zuba Supervised Diver to continue to ZUBA Dive while under direct supervision of an instructor, without having to retake the confined/pool and/or academics portion.

Course Content

The Zuba Confined Water Class is generally conducted over one day and is designed to provide a introduction to Zuba equipment configuration, basic diving physics and physiology, situational awareness and understanding the aquatic environment.

The in water skills will fist be conducted in a confined water environment which is defined as

“pool-like” conditions. These skills will include, but not be limited to, snorkeling techniques, buoyancy, trim, propulsion, and basic-6.

Course requirements include two hours of academic review and two hours of confined water work, one hour of which will be an orientation, one hour will be skills dives as defined below.

Classroom Courses & Text

1. Required Online or Printed Classroom Materials – Zuba Supervised/Confined Water Diver
2. Zuba Open Water Diver DVD is recommended

Academic Topics

1. Equipment Configuration: mask, fins, snorkel, Z-Harness (optional), Z-Trim Device (BCD) (optional), Z-Manifold (optional), exposure suit (optional), weights and weighting systems (optional), Z-Float, flags (optional), regulators, depth gauges (optional), timing devices (optional) and accessories
2. Applied Diving Physics
3. Applied Diving Physiology, Effects of Pressure, Hazards

Land Drills & Topics

1. Snorkeling skills
2. Pre Dive Drill
3. Trim, buoyancy and propulsion
4. Basic 6
5. Underwater communication

Required Dive Skills & Drills, Confined Water

1. All skills and drills as outlined in the general diving skills, Section 1.5
2. Demonstrate proficiency in snorkeling procedures including swimming, duck diving, kelp diving, weighting, ear squeeze management, ascending, clearing the snorkel without lifting the head, no mask swimming, clearing the mask, and surface survival skills.
3. Demonstrate proficiency in procedures for air failures, including independent swimming ascent and out-of-air alternatives.
4. Demonstrate proficiency in basic-6 skills.
5. Demonstrate good buoyancy and trim.
6. Equipment familiarization, removal and replacement of weights and Zuba pool gear.
7. Demonstrate effective proficiency with ascent/descents.

Minimum Equipment for Zuba Confined Water Diver Class

1. Z-Float
2. Single cylinder
3. First Stage with Over Pressure Valve (OPV) and QC6 Male and/or second stage
4. One (1) per student 25’/8m Low pressure hose with QC6 Female and/or Second stage regulator, two SS Bolt snaps. Maximin two hose per Z-Float and Cylinder.
5. Z-Trim Device: rear inflation-type/wing or trim device (Buoyancy Compensating Device)
6. Z-Harness or backplate system
7. At least one time-keeping device
8. Mask and fins
9. Exposure suit appropriate for the duration of exposure
10. Weighting system appropriate to be neutrally buoyancy at surface
11. (Optional) Z-Manifold (Distribution Block) with at least one (1) QC6 female input

12. (Optional) Regulator system: Primary second stage with a donateable 5’ (or 7’) hose stowed in a wrapped fashion around the diver’s neck, and a backup second stage bungeed around the diver’s neck in a necklace fashion.
13. (Optional) At least one depth-measuring device

3-103.5 Zuba Confined Water Diver

Purpose

The Zuba Confined Water course (Z-Float Underwater Breathing Apparatus) is an entry level class designed to teach **NON**-certified Zuba divers to be safe and comfortable while enjoying the wonders of Zuba diving in confined waters (confined waters means “pool-like” conditions - see course limitation below) . This class is structured to prepare a child, between the ages of 6 and 9 years old, to safely Zuba dive while under the direct supervision of their parental guardian. The class instructs the child in the use of the Zuba pool equipment and some Zuba diving techniques. The class incorporates basic Zuba diving theory, knowledge and equipment configuration. This class not only teaches them how to use the basic Zuba Pool equipment, but it teaches them how to be a safe Zuba confined water diver. Upon completion of the Zuba confined certification, the confined water Zuba diver can only dive in confined water or “pool-like” conditions with direct supervision of their parental guardian who must be Zuba Open Water certified diver.

The Zuba Confined Water course is normally conducted over a 1 day period, and cumulatively involves a minimum of 4 hours of instruction including academics and pool/confined water, with a maximum depth of 10’/3m using air as a breathing gas.

Their Zuba equipment and certification are consistent and upgradable to become a certified Zuba Junior Open Water diver when the student turns 10 years of age. The Zuba Confined water diver must take a full Zuba junior open water diver class to be upgraded. For more information on becoming a certified Zuba Junior Open Water Diver see the Zuba Open Water Diver Class.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age 7 years.
3. Must take the class with their parental guardian.
4. Must be able to swim a distance of at least 10’/3 meters on a breath hold.
5. Must demonstrate a swim of at least 25 yards/22 meters in less than 14 minutes without stopping and 2-minute survival swim/float.

Course Limits

1. Student to Instructor ratio is not to exceed 10:1 during land drill, surface exercises, and any direct in-water training.
2. Maximum training depth 10 feet/3m.
3. Standard gas is Air (21% O2)
4. Maximum two (2) hours of training Zuba dives in one day.
5. Training and certification for Confined Water Only, meaning:
   - Maximin Depth of 10’/3m
   - Visibility is sufficient to see ALL students in class at the same time
   - Daylight, or external flood lights to produce enough light to simulate daylight
   - Calm surface with no waves larger than 1.5ft/0.5m
   - No current (less than 1/8 knot)

Course Content
The Zuba Confined Water Class is designed to provide a introduction to Zuba Pool equipment configuration, basic diving physics and physiology, situational awareness and

understanding the aquatic environment.

The in water skills will be conducted in confined water environments which is defined as “pool-like” conditions (see above). These skills will include, but not be limited to, snorkeling techniques, buoyancy, trim, propulsion, and basic-6.

Course requirements include two hours of academic review and two hours of confined water work, a minimum of one skin dive and two hours of confined water dives, one hour of which will be an orientation, one hour will be skill dives as defined in the standards and procedures.

Classroom Courses & Text

1. Required Online or Printed Classroom Materials – Zuba Confined Water Diver
2. Zuba Open Water Diver DVD is recommended

Academic Topics

1. Equipment Configuration: mask, fins, snorkel, Z-Harness (optional), Z-Trim Device (BCD) (optional), Z-Manifold (optional), exposure suit (optional), weights and weighting systems (optional), Z-Float, flags (optional), regulators, depth gauges (optional), timing devices (optional) and accessories
2. Applied Diving Physics
3. Applied Diving Physiology, Effects of Pressure, Hazards

Land Drills & Topics

1. Snorkeling skills
2. Pre Dive Drill
3. Trim, buoyancy and propulsion
4. Basic 6
5. Underwater communication

Required Dive Skills & Drills, Confined Water

1. All skills and drills as outlined in the general diving skills, Section 1.5
2. Demonstrate proficiency in snorkeling procedures including swimming, duck diving, kelp diving, weighting, ear squeeze management, ascending, clearing the snorkel without lifting the head, no mask swimming, clearing the mask, and surface survival skills.
3. Demonstrate proficiency in procedures for air failures, including independent (swimming ascent) and out-of-air alternatives.
4. Demonstrate proficiency in basic-6 skills.
5. Demonstrate good buoyancy and trim.
6. Equipment familiarization, removal and replacement of weights and Zuba pool gear.
7. Demonstrate effective proficiency with ascent/descents.

Minimum Equipment for Zuba Confined Water Diver Class

1. Z-Float
2. Single cylinder with Z-Stage Harness (Fixed or temporary)
3. First Stage with Over Pressure Valve (OPV) and QC6 Male
4. One (1) per student 15’/4m Low pressure hose with QC6 Female and Second stage regulator - (QC6 Male in no attached second stage), two SS Bolt snaps. Maximin two hose per Z-Float and Cylinder.
5. Mask and fins (fins must be non-split)
6. Exposure suit appropriate for the duration of exposure
7. Weighting system appropriate to be neutrally buoyancy at surface
8. (Optional) Z-Manifold (Distribution Block) with at least one (1) QC6 female input

9. (Optional) Regulator system: Primary second stage with a donateable 5’ (or 7’) hose stowed in a wrapped fashion around the diver’s neck, and a backup second stage bungeed around the diver’s neck in a necklace fashion.
10. (Optional) Z-Trim Device: rear inflation-type/wing or trim device (Buoyancy Compensating Device)
11. (Optional) Z-Harness or backplate system
12. (Optional) At least one depth-measuring device
13. (Optional) At least one time-keeping device

3-104 Extreme Scuba Makeover

Purpose

UTD's Extreme Scuba Makeover is an entry level class designed to teach certified divers the foundational trim, buoyancy, and balance skills to be safe and comfortable in the water. This mini-class is structured to prepare divers for recreational diving and more advanced UTD classes. ESM incorporates basic scuba diving theory, knowledge and equipment configuration with precise diving skills.

Extreme Scuba Makeover is normally conducted over a 1-day period, and cumulatively involves a minimum of 6 hours of instruction including academics and pool/confined water to a maximum depth of 20'/6m using air as a breathing gas.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age 16 years.
3. Must be able to swim a distance of at least 25 feet/5 meters on a breath hold.
4. Must demonstrate a swim of at least 100 yards/90 meters in less than 12 minutes without stopping and 10-minute survival swim/float.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions.
3. Maximum training depth 30 feet/18m.
4. Standard gas is Air (21% O2)
5. Maximum three training scuba dives on one day, all dives to be during daylight hours
6. No overhead environment diving

Course Content

The in water skills will be conducted in a confined water environment. These skills will include, but not be limited to, snorkeling techniques, buoyancy, trim, one propulsion technique (frog kick).

Course requirements include three (3) hours of academic review and three (3) hours of confined water work.

Classroom Courses & Text

1. Required Online or Printed Classroom Materials – Extreme Scuba Makeover
2. Essentials of Recreational Diving/Open Water Diver DVD is recommended

Academic Topics

1. Equipment Configuration: mask, fins, snorkel, BCD, exposure suit, weights.
2. Applied Diving Physics
3. Applied Diving Physiology, Effects of Pressure, Hazards

Land Drills & Topics

1. Ear clearing
2. Mask clearing and remove/replace

Required Dive Skills & Drills, Confined Water and Open Water

1. Demonstrate proficiency in snorkeling procedures including swimming, duck diving, ear squeeze management, ascending, clearing the snorkel without lifting the head, clearing the mask, and surface survival skills.
2. Demonstrate good buoyancy and trim.
3. Be able to comfortably demonstrate at least one non-silting propulsion technique.
4. Demonstrate effective proficiency with ascent/descents.

3-105 Open Water Diver

Purpose

UTD's Open Water Diver course is an entry level class designed to teach **NON**-certified divers to be safe and comfortable while enjoying the wonders of our oceans, lakes and other waters. This class is structured to prepare divers for recreational diving using proper equipment and proper diving techniques. The class incorporates basic scuba diving theory, knowledge and equipment configuration with precise diving skills and emergency procedures. This class not only teaches you how to use the equipment, but it teaches you how to be a safe and environmentally aware diver.

The UTD Open Water course is normally conducted over a 3-4 day period, and cumulatively involves a minimum of 24 hours of instruction including academics, pool/confined water, and open water dives to a maximum depth of 60'/18m using air as a breathing gas. For a more advanced Open Water class, see Recreational 1.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age 16 years.
3. Must be able to swim a distance of at least 50 feet/15 meters on a breath hold.
4. Must demonstrate a swim of at least 200 yards/185 meters in less than 14 minutes without stopping and 10-minute survival swim/float.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions.
3. Maximum training depth 60 feet/18m.
4. Standard gas is Air (21% O2)
5. Maximum three training scuba dives on one day, all dives to be during daylight hours
6. No overhead environment diving

Course Content

The UTD Open Water Class is designed to provide a introduction to UTD equipment configuration, basic scuba diving physics and physiology, minimum decompression,including history of decompression and practice, physics, physiology, tables, and operational considerations including an introduction to Nitrox, situational awareness and understanding scuba environment.

The in water skills will first be conducted in a confined water environment prior to entering the open water. These skills will include, but not be limited to, snorkeling techniques, buoyancy, trim, propulsion, and basic 6, air sharing, rescue skills.

Course requirements include three (3) hours of academic review and three (3) hours of confined water work, a minimum of one (1) skin dive and four (4) open water dives, one (1) of which will be an orientation dive, two (2) will be skill dives and one (1) will be experience dives as defined in the UTD standards and procedures.

The initial dive will be conducted in water no deeper then 30 feet (15 meters) to

evaluate the diver's ability and to transition from the pool to the open water environment while still maintaining the required skill levels. The last dive is an experience dive at depth but not in excess of course depth limitations.

Classroom Courses & Text

1. Required Online or Printed Classroom Materials – Open Water Diver
2. Open Water Diver Worksheet (PDF) and Worksheets
3. Essentials of Recreational Diving/Open Water Diver DVD is recommended

Academic Topics

1. Equipment Configuration: mask, fins, snorkel, BCD, exposure suit, weights and
2. weighting systems, floats and flags, regulators, depth gauges, timing devices, lights
3. Applied Diving Physics
4. Applied Diving Physiology, Effects of Pressure, Hazards
5. Diving Planning, tables, computers
6. Understanding Compressed Gas Elimination
7. Introduction to Nitrox
8. Nitrox versus Other Gases
9. Dive Planning and Logistics
10. Scuba diving environments, topography, aquatic life, weather, hazards, boats

Land Drills & Topics

1. Situational Awareness
2. Dive team order and protocols, buddy awareness
3. Pre Dive Drill
4. Basic 6
5. Out of Air (OOA) procedures
6. Basic navigation skills
7. Underwater communication
8. Basic Rescue skills

Required Dive Skills & Drills, Confined Water and Open Water

1. All skills and drills as outlined in the general diving skills, Section 1.5
2. Demonstrate proficiency in snorkeling procedures including swimming, duck diving, ear squeeze management, ascending, clearing the snorkel without lifting the head, clearing the mask, and surface survival skills.
3. Demonstrate proficiency in procedures for gas failures, including dependent and independent (swimming ascent) and out-of-air alternatives.
4. Demonstrate proficiency in basic 6 skills.
5. Demonstrate good buoyancy and trim.
6. Be able to comfortably demonstrate at least one non-silting propulsion technique.
7. Equipment familiarization, removal and replacement of weights and scuba gear.
8. Gas-sharing scenarios to include a direct ascent while conducting any potential
9. decompression obligations.
10. Demonstrate basic underwater navigation techniques.
11. Demonstrate effective proficiency with ascent/descents.
12. Demonstrate proficiency with self rescue skills
13. Demonstrate a diver tow on the surface for three (3) minutes.

3-110 Recreational Diver 1

Purpose

The Recreational Diver 1 course is a more robust entry level class than our Open Water class. It is designed to teach **NON**-certified divers the wonders of diving and to build a solid UTD platform using the law of primacy as the greatest tool. This class is structured to prepare divers for recreational diving using proper equipment, diving techniques and breathing mixtures. The class incorporates – not only how we do things, but also why. Recreational Diver 1 training focuses on introducing new divers to the in-water skills similar to that of Essentials Recreational diving. This will include problem identification and resolution, building the platform for the beginning diver to practice, and then continuing on to progressively more challenging diving. In this class, students will be trained in the use of single tanks/cylinders and in the potential failure problems associated with them.

The UTD Recreational 1 course is normally conducted over a 5-6 day period, and cumulatively involves a minimum of 50 hours of instruction including academics, pool/confined water, and open water dives to 60'/18m using air as a breathing gas. The final dives are "experience dives," where you will use your new skills while being "shadowed" by your instructor.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 16 years of age.
3. Must be able to swim a distance of at least 50 feet/15 meters on a breath hold.
4. Must demonstrate a swim of at least 200 yards/185 meters in less than 14 minutes without stopping and 10-minute survival swim/float.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions
3. Maximum training depth 60 feet/18m.
4. Standard gas is Air (21% O2)
5. Maximum three training scuba dives on one day, all dives to be during daylight hours
6. No overhead environment diving

Course Content

Rec 1 is designed to provide a introduction to UTD equipment configuration, basic scuba diving physics and physiology, Minimum decompression, including history of decompression and practice, physics, physiology, tables, and operational considerations including an introduction to Nitrox, situational awareness and understanding scuba environment. The in water skills will first be conducted in a confined water environment prior to entering the open water. These skills will include, but not be limited to, snorkeling techniques, buoyancy, trim, propulsion, and basic 6 air sharing and valve management.

Course requirements include ten (10) hours of academic review and six (6) hours of confined water work, eight (8) dives, two (2) of which will be orientation dives, four (4) will be critical skill dives and two (2) will be experience dives as defined in the UTD standards and procedures.

The initial two (2) dives will be conducted in water no deeper then 30 feet (15 meters) to evaluate the diver's ability and to transition from the Pool to the Open water environment while still maintaining the required skill levels. The last two dives are to be experience dives at depth but not in excess of course depth limitations.

Classroom Courses & Text

1. Required Online Classroom Materials – Recreational 1
2. Recreational 1 Worksheet (PDF) and Worksheets
3. Essentials of Recreational Diving/Openwater DVD is recommended

Academic Topics

1. Equipment Configuration: mask, fins, snorkel, BCD, exposure suit, weights and weighting systems, floats and flags, regulators, depth gauges, timing devices, lights
2. Applied Diving Physics
3. Applied Diving Physiology, Effects of Pressure, Hazards
4. Diving Planning, tables, computers
5. Understanding Compressed Gas Elimination
6. Introduction to Nitrox
7. Nitrox versus Other Gases
8. Dive Planning and Logistics
9. Scuba diving environments, topography, aquatic life, weather, hazards, boats

Land Drills & Topics

1. Situational Awareness
2. Dive team order and protocols, buddy awareness
3. Pre Dive Drill
4. Basic 6
5. Out of Air (OOA) procedures
6. Simulated Valve Failure procedures
7. Basic navigation skills
8. Underwater communication

Required Dive Skills & Drills, Confined Water and Open Water

1. All skills and drills as outlined in the general diving skills, Section 1.5
2. Demonstrate proficiency in snorkeling procedures including swimming, duck diving, ear squeeze management, ascending, clearing the snorkel without lifting the head, clearing the mask, and surface survival skills.
3. Demonstrate proficiency in procedures for gas failures, including valve manipulation, gas-sharing, dependent and independent (swimming ascent) out-of-air alternatives.
4. Demonstrate proficiency in basic 6 skills.
5. Demonstrate good buoyancy and trim.
6. Be able to comfortably demonstrate at least one propulsion technique appropriate for delicate and/or silty environments.
7. Equipment familiarization, removal and replacement of weights and scuba gear.
8. Gas-sharing scenarios to include a direct ascent while conducting any potential decompression obligations.
9. Demonstrate effective proficiency with ascent/descents.
10. Demonstrate recovery of an unconscious diver.
11. Demonstrate a diver tow on the surface for three (3) minutes.

3-112 Recreational Diver 2

Purpose

The Recreational Diver 2 course is the next step for recreational divers to expand their diving to slightly deeper depths with more advanced gases. Rec 2 is structured to prepare divers for a wider range of environment conditions and more advanced recreational diving using proper equipment, diving techniques and breathing mixtures including a thorough knowledge of the use of Nitrox.

The class will also seek to incorporate teaching more advanced decompression theories and the use of lift bags and SMBs for correct and safe ascent procedures when diving beyond 60'/ 18m. Recreational Diver 2 training focuses on expanding on either the Recreational 1 or the Essentials of Rec classes and is designed to cultivate and integrate some critical skill training while solidifying the essential skills, all required for safe deeper recreational diving.

The Rec 2 class will include problem identification and resolution, building the capacity for progressively more challenging diving. In this class, students will be trained in: (a) the use of single tanks/cylinders and in the potential failure problems associated with them; (b) the expanded use of Nitrox for extended bottom times; and the use of a Surface Marker buoy (SMB) and mid water ascent strategies. The class includes one night dive.

The UTD Recreational 2 course is normally conducted over a 3-4 day period, and cumulatively involves a minimum of 30 hours of instruction including academics, pool/confined water, and open water dives to 100'/30m using Nitrox 32 as a breathing gas. The final dives are "experience dives," where you will use your new skills while being "shadowed" by your instructor.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 18 years of age.
3. Must have taken the UTD Recreational 1, Essentials of Recreational Diving, or equivalent.
4. Must have a minimum of 25 dives beyond open water qualification, 10 of which are non-training dives.
5. Must be able to swim a distance of at least 50 feet/15 meters on a breath hold.
6. Must be able to swim at least 300 yards/275 meters in less than 14 minutes without stopping.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions.
3. Maximum training depth 100 feet /30m
4. Standard gas is Nitrox 32.
5. No overhead environment diving
6. No stage decompression

Course Content

The UTD Recreational 2 course is designed to provide a deeper knowledge of Nitrox, including history of decompression and practice, physics, physiology, tables, and operational considerations.

Course requirements include 5 (5) hours of academics review and six (6) dives, four (4) of which will be critical skill dives and two (2) will be experience dives as defined in the UTD standards and procedures.

The initial two (2) dives will be conducted in water no deeper then 40 feet (15 meters) to evaluate the diver's ability and to identify any deficiencies in skill levels. The last two dives are to be Nitrox dives at depth for experience, but not in excess of course depth limitations.

Classroom & Text

1. Required Online Classroom Materials – Recreational 2
2. Recreational 2 Worksheet (PDF) and Worksheets
3. Essentials of Recreational Diving and Essentials of Tech DVD are recommended

Academic Topics

1. Applied Diving Physics
2. Applied Diving Physiology
3. Diving Planning
4. Understanding Compressed Gas Elimination
5. Gas planning with Nitrox
6. Nitrox versus Other Gases
7. UTD Equipment Configuration
8. Dive Planning and Logistics

Land Drills and Topics

1. Situational Awareness
2. Dive team order and protocols
3. Pre Dive Drill
4. OOA's, and Touch contact
5. Simulated Valve Failure procedures
6. Use of safety spools and lift bag
7. Basic navigation skills

Required Dive Skills and Drills

1. All skills and drills as outlined in the general diving skills, Section 1.5.
2. Demonstrate proficiency in procedures for gas failures; including valve manipulation and gas-sharing.
3. Demonstrate proficiency in lift bag or surface marker buoy deployment.
4. Demonstrate good buoyancy and trim.
5. Be able to comfortably demonstrate at least one propulsion technique appropriate for delicate and/or silty environments.
6. Demonstrate proficiency in the use of touch contact communication during out-of-gas situations. Returning to entry point.
7. Equipment familiarization.
8. Gas-sharing scenarios to include a gas-sharing horizontal swim for at least 200 feet/60 meters.

9. Gas-sharing scenarios to include a direct ascent while conducting any potential decompression obligations.
10. Demonstrate effective valve-management by going to buddy for OOA, shutting down a valve, and returning the valve to the open position.
11. Demonstrate effective proficiency with ascent/descents and deep stops.
12. Complete at least one night or low visibility dive and demonstrate the skills associated with light failure.
13. Complete at lest one navigation skill that, at a minimum, includes following a compass heading for 30'/10m and returning on its reciprocal.

3-114 Recreational Diver 3

Purpose

The Recreational Diver 3 is a No-Decompression (NDL) Helitrox course structured to prepare divers for deeper recreational diving using proper equipment, diving techniques and standard Helium breathing mixtures.

Recreational Diver 3 training continues the Essentials of Rec / Essentials of Tech and the Recreational 2 or equivalent skills and is designed to cultivate, integrate and expand those skills required for safe deeper recreational diving. The class will incorporate more advanced decompression theories and the use of correct ascent procedures along with problem identification/resolution, while building the capacity for progressively more challenging diving. In this class, students will be trained in: (a) the use of single or double tanks/cylinders and in the potential failure problems associated with them; (b) the use of Nitrox and Helitrox for extended bottom times; and (c) the use of Helium to minimize narcosis, CO2, gas density and post dive "nitrogen stress."

The UTD Recreational 3 course is normally conducted over a 3-4 day period, and cumulatively involves a minimum of 30 hours of instruction including academics, pool/confined water, and open water dives to 130'/39m using Helitrox 25/25 as a breathing gas. The final dives are "experience dives," where you will use your new skills while being "shadowed" by your instructor.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 18 years of age.
3. Must have taken the UTD Rec 2 or Essentials of Rec/Tech and Nitrox, or equivalent.
4. Must have a minimum of 50 dives beyond open water qualification 25 of which should be non-training dives.
5. Must be able to swim a distance of at least 50 feet/15 meters on a breath hold.
6. Must be able to swim at least 300 yards/275 meters in less than 14 minutes without stopping.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises, or direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions.
3. Maximum training depth 130 feet/39m.
4. Stay within no decompression limits.
5. No overhead environment diving.
6. Equivalent Narcotic Depth (END) of 100'/30m
7. Use of a standard UTD bottom mix, including Helitrox 25/25 for dives deeper than 100'/30m.

Course Content

The UTD Recreational 3 course is designed to provide a working knowledge of Nitrox and Helitrox, including history of decompression and practice, physics, physiology, tables, (deco planning software) and operational considerations.

Course requirements include six (6) hours of academics and six (6) dives, four (4) of which will be critical skill dives and two (2) will be experience dives as defined in the UTD standards and procedures. The initial two (2) dives will be conducted in water no deeper then 40 feet (15 meters) to evaluate the diver's ability and to identify any deficiencies in skill levels. The last two dives are to be Helitrox dives at depth for experience, but not in excess of course depth limitations.

Classroom & Text

1. Required Online Classroom Materials – Recreational 3
2. Recreational 3 Worksheet (PDF) and worksheets.
3. Technical/Essentials of Recreational Diving & Essentials of Tech DVD are recommended

Academic Topics

1. Applied Diving Physics
2. Applied Diving Physiology
3. Diving Planning
4. Understanding Compressed Gas Elimination
5. Introduction to Helitrox
6. Helitrox versus Other Gases
7. UTD Equipment Configuration
8. Dive Planning and Logistics

Land Drills & Topics

1. Situational Awareness
2. Dive team order and protocols
3. Pre Dive Drill
4. OOA's, and Touch contact
5. Simulated Valve Failure procedures
6. Use of safety spools and lift bag
7. Basic navigation skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills, Section 1.5.
2. Demonstrate proficiency in procedures for gas failures including valve manipulation and gas-sharing.
3. Demonstrate proficiency in lift bag/surface marker buoy deployment.
4. Demonstrate good buoyancy and trim.
5. Be able to comfortably demonstrate at least one propulsion technique appropriate for delicate and/or silty environments.
6. Demonstrate proficiency in the use of touch contact communication during out-of-gas situations. Returning to entry point.
7. Equipment familiarization.
8. Gas-sharing scenarios to include a gas-sharing horizontal swim for at least 200'/60m.
9. Gas-sharing scenarios to include a direct ascent while conducting any potential decompression obligations.
10. Demonstrate effective valve-management by going to buddy for OOA, shutting down a valve, and returning the valve to the open position.
11. Demonstrate effective proficiency with ascent/descents and deep stops.

3-120 Ratio Deco

Purpose

The ratio deco course is designed to study, discuss, analyze and understand a wide variety of existing decompression models and their pro's and con's. During the course you will develop a strategy wherein you apply the best of each of these theories to your personal diving application. Ratio Deco is a methodology that allows a diver to apply various existing decompression models into a cohesive strategy that the team can apply during a dive. It is decompression "on the fly." Ratio Deco is NOT a scientific decompression model or theory, rather it is an application of those theories.

Using Ratio Deco requires a series of requisite parameters including, but not limited to, complete situational awareness, cohesive team diving, standardized UTD back-gases and deco mixtures, and a through understanding of the Ratio Deco methodology and all it's parameters, along with the discipline to stay within those limitations. The user of Ratio Deco must acknowledge the need to build real-life, in-water experience with the through study, practice and an awareness of risk vs. benefit.

This class covers in detail all the aspects of Ratio Deco, or what is better known as "Decompression on the Fly." We start with the history of decompression modeling, Henry's law, Haldanean theory, US Navy, Workman, Bulhmann, VPM and RGBM, and most importantly how we apply these to personal decompression strategy. You will also understand the overall concept of a safe and repeatable ascent strategy and how to essentially do "Deco On the Fly". The class will end with examples and exercises.

This is an academic-only class normally conducted over one 8-hour day.

The goals of Ratio Deco training are:

1. To develop the student's practical knowledge and understanding of current and past decompression theories.
2. To enable the student to create an organized and safe plan for decompression without primary reliance on traditional tables or computers.
3. To create a "thinking" decompression diver who is able to adjust for changes in a dive profile during the dive.

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Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age of 18
3. Completed UTD registration process
4. Open water certification or equivalent
5. Nitrox certification is not required but is strongly recommended.

Course Limits

1. As this is an academic-only class, standard ratios do not apply.

Course Content

This is an academic-only class conducted over eight (8) classroom hours. There are no dives required for this class. The course covers current and past decompression models, including the

history of decompression. Coverage includes gas laws, the physics and history of dissolved gas decompression models, the physics and history of bubble theory models, “Min Deco” profiles for non-decompression diving, Ratio Deco profiles for decompression diving, decompression curves, “on the fly” decompression planning, standard gas mixes, the benefits and dangers of oxygen, nitrogen, helium, and carbon dioxide, and planning your personal decompression strategy.

Online Classroom Courses & Text

1. Online Classroom Materials – Ratio Deco
2. Ratio Deco Worksheet
3. Ratio Deco Text

Academic Topics

1. History of Decompression Modeling
2. Henry’s Law
3. Haldane, Bulhmann, and dissolved gas models
4. VPM, RGBM, and bubble models
5. Min-deco
6. 1:1 Ratio Deco
7. 2:1 Ratio Deco
8. 3:1 Ratio Deco
9. Deco “On the Fly”
10. Your personal decompression strategy
11. The five contingencies
12. Safe diving practices

Required Dive Skills & Drills

No dives required.

Equipment Requirements

No equipment required.

3-122 Nitrox Diver

Purpose

This is a class for certified divers that covers in detail current uses of “back-gas” breathing mixtures with an oxygen content of 32%. Breathing Nitrox allows for extended bottom times and/or a safety margin over air in depths to 100’/30m. The class covers the practical and theoretical aspects of breathing high-oxygen mixtures, gas laws and physics, physiology, gas blending and safety, maximum operating depths, “Min-deco” procedures, and an academic introduction to decompression diving.

The UTD Nitrox course is normally conducted over a 2 day period, and cumulatively involves a minimum of 16 hours of instruction including academics and two dives. The dives focus on precise buoyancy control and emergency procedures. The two Nitrox class dives may be combined with dives from other UTD classes such as Essentials of Tech.

For a more advanced Nitrox class, including critical skills training to a depth of 100’/30m, see the UTD Rec 2 class.

The goals of Nitrox training are:

1. To develop the student's practical knowledge and understanding of breathing gas mixtures with an oxygen content 32%.
2. To enable the student to create an organized and safe dive plan using Nitrox breathing mixes.
3. To enable to student to understand the safety and ramifications of mixing and purchasing Nitrox breathing mixes.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age of 18
3. Completed UTD registration process
4. UTD Rec 1, open water certification, or equivalent
5. Must be able to swim a distance of at least 50 feet/15 meters on a breath hold.
6. Must be able to swim at least 300 yards/275 meters in less than 14 minutes without stopping.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions.
3. Maximum training depth 60 feet / 18m.
4. Standard gas is Nitrox 32. No Helium.
5. No stage decompression
6. No overhead environment diving
7. UTD Standard Equipment requirement may be waived for Nitrox Class

Course Content

The course covers the history of Nitrox breathing mixes, uses and misconceptions about Nitrox, the physics of gas laws and partial pressures, physiology and oxygen toxicity, gas planning including rock bottom planning and decompression strategies, Min-deco dive planning, blending and mixing Nitrox breathing gases, analyzing gas mixtures, and safe diving practices.

Online Classroom Courses & Text

1. Online Classroom Materials – Nitrox Diver
2. Nitrox Worksheet
2. Nitrox Test

Academic Topics

1. The definition of Nitrox
2. Misconceptions about Nitrox
3. Basics of breathing gases
4. Understanding partial pressure
5. Physiology, medical issues, and oxygen toxicity
6. Maximum operating depth
7. Equivalent air depth
8. Dive planning with Nitrox, using tables and/or dive computers
9. Min-deco
10. Gas mixing and blending, obtaining Nitrox
11. Standard gas mixes, gas analysis, cylinder labeling
12. Safe diving practices

Land Drills & Topics

1. Situational Awareness
2. Dive team order and protocols
3. Pre Dive Drill
4. OOA's, and Touch contact
5. Basic navigation skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills, Section 1.5.
2. Demonstrate good buoyancy and trim.
3. Be able to comfortably demonstrate at least one propulsion technique appropriate for
4. delicate and/or silty environments.
5. Equipment familiarization.
6. Gas-sharing scenarios to include a gas-sharing horizontal swim for at least 200
7. feet/60 meters.
8. Gas-sharing scenarios to include a direct ascent.
9. Demonstrate effective proficiency with ascent/descents and deep stops.
10. Demonstrate a rescue of a diver simulating oxygen toxicity.

3-124 Dry Suit Mini

Purpose

The purpose of the UTD Dry Suit Mini is to introduce and train a diver in the use of a dry suit. This Mini presumes the student is certified to at least the open water level with an internationally recognized training agency.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age of 16
3. Completed UTD registration process
4. The use of prescription drugs must be authorized prior to the onset of diver training by a physician. Birth Control pills are excepted.
5. Standard gases are used. Nitrox and/or Helium certification required if breathing any gas with higher O2 content than 22% and/or using a helium based mix.

Course Content

This class requires a minimum of four hours of academics and dry runs and at least two in-water skills dives. Additional training and dives are at the discretion of the instructor.

The course focuses on cultivating the practical, normal, and emergency skills required by all dry suit divers, including buoyancy control, emergency procedures, and care and maintenance.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. All dives are to maintain a working PO2 of no greater than 1.4
3. Instructor to student ratio maximum 6:1

Online Classroom Courses & Text

1. Online Classroom Materials - Dry Suit
2. Technical or Recreational Gas Planning Worksheet
3. Essentials of Recreational Diving DVD is recommended

Academic Topics

1. Dry Suit Diving Principles
2. Types and materials
3. Undergarments
4. Care and maintenance
5. Inflation systems
6. Buoyancy Control
7. Normal diving procedures
8. Emergency procedures

Land Drills & Topics

1. Setup and configuration of inflation system
2. Dry suit fit and function

3. Donning and doffing.
4. Failures - small leaks
5. Failures - major leaks
6. Failures - valve failures
7. Failures - inflation system failures
8. Care and Maintenance

Required Dive Skills and Drills

1. Demonstrate good buoyancy and trim
2. Normal descents and ascents
3. Use of valves
4. Loss of inflation system
5. Simulated minor leak
6. Simulated major leak
7. Recovery from gas in feet
8. Simulated loss of exhaust valve

Equipment Requirements

Dry suit, undergarments, normal dive gear.

3-125 Rescue and Emergency Procedures

Purpose

Rescue and Emergency Procedures may be one of the most valuable courses any diver can take. The Rescue Diver course is designed to prepare the student for a variety of emergency situations and is centered around both self-rescue and buddy-rescue. Self-rescue skills begin with accident avoidance, dive planning, comfort in the water under stressful situations, and equipment failures. Buddy-rescue skills include missing diver and search protocols, multiple air-sharing situations, lost mask/no visibility situations, assisting tired, panicked, disoriented, or unconscious divers at depth and on the surface, and clear communications. The student completing this Rescue class will be more comfortable in the water and will be much more alert in preventing small situations from becoming full-fledged emergencies.

The prerequisites for the UTD Rescue Diver course include First Aid/CPR/AED/Oxygen administration certifications from a recognized agency. In order for the UTD Rescue Diver certification to remain valid, the UTD card holder must maintain a current First Aid/CPR/AED/Oxygen certification with a two-year expiration date, and/or have taken and passed a First Aid/CPR/AED/Oxygen refresher within the prior two years.

The UTD Rescue course is normally conducted over a 2 to 3 day period, and cumulatively involves a minimum of 18 hours of instruction.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 16 years of age.
3. Must have taken the UTD Recreational 1, Essentials of Recreational Diving, or equivalent.
4. Must have completed, within the prior two years, a First Aid/CPR/AED/Oxygen administration course from a recognized agency.
5. Must have a minimum of 25 dives beyond open water qualification, 10 of which must be non-training dives.
6. Must be able to swim a distance of at least 50 feet/15 meters on a breath hold.
7. Must be able to swim at least 300 yards/275 meters in less than 14 minutes without stopping.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions
3. Maximum training depth 60 feet (18m)
4. Standard gases are Air and Nitrox 32
5. No overhead environment diving
6. No stage decompression

Course Content

The UTD Rescue course is designed to provide a complete understand of self-rescue techniques, buddy-rescue techniques, search and rescue procedures, accident prevention and avoidance, and dive planning.

Course requirements include six (6) hours of academics and four (4) dives, three (3) of which will be critical skill dives and one (1) will be an experience dive simulating a search and recovery effort.

A pool session or confined water session will take place prior to any open water dives. The initial two (2) open water dives will be conducted in water no deeper then 40 feet (15 meters) during which time critical rescue skills will be introduced. The final dive will put the student in a simulated situation where he or she will be required to initiate and coordinate a search effort followed by an underwater rescue, surface tow, and extraction.

Classroom & Text

1. Required Online Classroom – Rescue Diver
2. Rescue Diver Worksheet (PDF) and Worksheets
3. Essentials of Recreational Diving & Essentials of Tech DVD are recommended

Academic Topics

1. Accident prevention and avoidance
2. First aid and CPR, temperature related problems, panic, drowning and near drowning
3. Decompression sickness/lung over-expansion injuries
4. Gas toxicity
5. Marine life injuries
6. Stress and shock, exhaustion
7. Diving fitness
8. Leadership during emergencies, neurological exams
9. Accident management plan for local dive area

Land Drills & Topics

1. Pre-dive briefing, problem/risk recognition and avoidance, visual and audible signals
2. Out of air and air-sharing protocols
3. Panicked diver protocols
4. Extractions and carries
5. First aid for severe bleeding, fractures, serious injuries, shock, first aid, AED, O2
6. Walk-through of simulated search, rescue, extraction, and first aid

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills, Section 1.5.
2. Demonstrate proficiency the use of rescue equipment, including surface marker buoys, lift bags, floats, backboards, etc.
3. Self rescue techniques, including low air, free flowing regulator, underwater communications, lost mask.
4. Demonstrate effective valve-management by going to buddy for OOA, shutting down a valve, and returning the valve to the open position.
5. Buddy rescue techniques, including out-of-air situations, air sharing, panicked diver, fatigued diver, cramping diver, rapid or shallow breathing diver, equipment removal
6. Surface rescue techniques for responsive diver and panicked diver, 2 methods of towing
7. Unconscious diver recovery from a depth of at least 30’/10m.
8. Toxing diver recovery from a depth of at least 30’/10m.
9. Assisting a diver who has lost control of buoyancy (negative and positive).
10. Search procedures for a lost diver.

11. Buddy separation, lost buddy procedures.
12. Gas-sharing scenarios to include a gas-sharing horizontal swim for at least 200 feet/60 meters.
13. Gas-sharing scenarios to include a direct ascent while conducting any potential decompression obligations.
14. Guide a no-mask buddy to the surface, be guided to the surface without a mask, both scenarios while conducting any potential decompression obligations.
15. Surface tow a diver simulating unconsciousness w/rescue breathing for 5 minutes.
16. Surface tow a diver in full equipment, in the environment they will be diving,for 10 minutes.
17. Extract a tired diver and an unconscious diver from a boat and shore.
18. Simulated search, rescue, extraction, first aid.

3-126 Scooter Diver 1

Purpose

This unique class is designed to share the essential principles of diving with a Scooter, or Diver Propulsion Vehicle. The class reviews the critical skills that apply when operating a scooter in recreational realms. This is an excellent class, no matter which type of scooter or DPV you use. You will learn not only how to correctly operate a scooter but also basic maintenance and simple repairs.

In addition to simply sharing the FUN of scooter/DPV diving, the Scooter 1 class instructs divers in the critical aspects of scooter diving, increasing diver fun and efficiency while reducing stress and diver risk. Skills will focus on: improving diver proficiency and awareness while scootering, scooter team communication, scooter buoyancy control, effective scooter risk evaluation and efficient dive planning. We also include scooter care and upkeep for those who own their scooter as well as techniques for proper balance, weight and towline sizing.

This class is conducted over three days with 24 hours of instruction including 8 hours of academic work and four dives.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Minimum age of 18.
3. Open water certification or equivalent.
4. Minimum of 25 logged dives.

Course Limitations

1. General Training Limits as outlined in Section 1.4
2. All dives are to maintain a working PO2 of no greater than 1.4
3. Max depth during class of 100’ / 30m
4. Standard gases are air and Nitrox 32
5. Double or Single tank configuration
6. Long hose primary, and necklace style backup regulator hose configuration
7. Instructor to student ratio maximum 6:1 in the class.

Course Contents

In this class you will learn the fundamental skills associated with scooter diving. The Scooter presentation expressed in this section provides the foundation upon which all future scooter diving will require – all essential elements of the scooter beginning with the motor, the basic mechanical components, battery burn time management and culminating in a detailed discussion respecting gas management protocols. Other sessions are designed to introduce all the essential and critical skills such as learning to balance the scooter, how to properly weight the scooter for proper buoyancy characteristics and suggested towline sizing. Proper balance and trim are essential to learning to use a scooter correctly, in addition to learning to turn, stop, start and deal with the scooter while still maintaining good awareness. You will also learn and practice important skills such towing the scooter and other scooter divers. You will also be introduced to additional critical skills relating to scooter based diving such as dealing with an OOA emergency, failed scooters, runaway scooters.

Online Classroom Courses & Text

1. Online Classroom Materials – Scooter 1
2. Scooter Worksheet
3. Scooter DVD is recommended

Academic Topics:

1. UTD organization
2. Situational Awareness
3. Scooter/DPV Diving
4. Purpose & Parts
5. Types including Ride Behind &Ride On
6. Riding Positioning for Personal & Team
7. Buoyancy of a Diver Propulsion Vehicle or Scooter
8. Streamlining
9. Towing Equipment & Scooter
10. Parts of Scooter
11. Maintenance
12. Assembly and Disassembly
13. Ascending Speeds
14. Propeller Wash
15. Propeller Entanglements
16. Dealing with Flow
17. Dive Planning
18. Gas Management
19. Time
20. Distance
21. Comfort
22. Depth Monitoring
23. Emergency Planning

Land Drills & Topics

1. Divers Location
2. Starting/Stopping
3. Maneuvering
4. Loss of Gas
5. Loss of Vehicle
6. Loss of Team mate
7. Loss of Control
8. Having too much fun

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5
2. Demonstrate good buoyancy and trim
3. Steering a course with LH and RH Turns, ascending and descending
4. Swimming with a dead Scooter/DPV
5. Being towed by another Scooter/DPV diver
6. Being towed by another Scooter/DPV diver while towing your dead Scooter/DPV
7. Gas matching & planning for a Scooter/DPV team
8. Gas sharing while towing
9. Emergency Out of Air management, including a direct ascent to the surface

10. Hovering with a non-running Scooter/DPV

Equipment Specifications

1. All equipment noted in paragraph 3.0
2. Tow-behind style scooter (X-Scooter, Silent Submersion, Tekna, Mako Oceanic)
3. Tow harness

3-128 Scooter 2 Diver

Purpose
Once you have completed the Scooter Level 1 and know what all the fun is about, you will want to continue to build your educational experience with this more challenging class. Designed with the critical skills required to dive the scooter in technical and overhead environments, the Scooter Level 2 class prepares the diver for technical depths and limited decompression diving.

In addition to simply sharing the FUN of scooter diving, the Scooter 2 class instructs divers in the critical aspects of deeper environments, stage use/handling and switches, and the use of multiple scooters. These allow for increasing your range, depth and distance while maximizing diver fun and efficiency by reducing stress and risk.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Minimum age of 21.
3. UTD Technical Diver 2 and Scooter 1 class or equivalent with assessment.
4. Minimum of 50 logged scooter dives.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. All dives are to maintain a working PO2 of no greater than 1.4
3. Standard gases are Nitrox and Trimix
4. Double tank and deco/stage bottle configuration
5. Maximum depth 160’/48m
6. Instructor to student ratio maximum 3:1 in the class

Course Content

This class is conducted over (3) three days, with a total of 24 hours of instruction, 6 hours of class and 6 full experience dives.

The class amplifies the skills introduced in your Scooter level 1 class as well as extends the learning to ensure you understand each critical aspect of the scooter. The “dry run” sessions are designed to introduce all the mastery and critical skills covered in this class. Learning to run guideline (reels and spools), pickup guidelines, stage/deco bottle drop and pickup, dealing with multiple scooters and learning to turn, stop, start and deal with the scooter in tighter environments. You will also learn and practice important skills such as towing multiple scooters and other scooter divers. You will learn to do critical skills with the scooter – OOA's, failed scooters, runaway scooters and multiple failure scenarios while ensuring you can complete your decompression or return to your starting point.

Online Classroom Course & Text

1. Online Classroom Materials – Scooter 2
2. Scooter Worksheet
3. Scooter DVD is recommended

Academic Topics:

1. Riding Positioning for Personal & Team

2. Learning to use Guidelines and spools while scootering
3. Stage bottle use during scootering
4. Deco bottle use during scootering
5. Buoyancy of Diver Vehicle (+/-)
6. Streamlining
7. Towing Equipment & multiple Scooters (DPV's)
8. Propeller Entanglements
9. Dive Planning
    a. Gas Management
    b. Time
    c. Distance
10. Emergency Planning

Land Drills & Topics

1. Divers Location
2. Starting/Stopping
3. Maneuvering
4. Loss of Gas
5. Loss of Vehicle
6. Loss of Team mate
7. Loss of Control
8. Guideline/spool use
9. Stage/Deco bottle use

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5
2. Demonstrating the dropping and retrieval of a Stage bottle without generating silt outs.
3. Deploying and retrieving a 400'/120m guideline
4. Swimming with a dead Scooter/DPV
5. Being towed by another Scooter/DPV diver
6. Being towed by another Scooter/DPV diver while towing your dead Scooter/DPV
7. Gas matching & planning for a Scooter/DPV team
8. Gas sharing while towing
9. Emergency Out of air management, including a direct ascent to the surface\
10. Decompression with a Scooter/DPV
11. Runaways during deco

Equipment Specifications

1. All equipment noted in paragraph 3.0
2. Tow-behind style scooter (X-Scooter, Silent Submersion, Tekna, Mako Oceanic)
3. Stage/Deco bottles appropriate for the diving to be completed

3-132 Scubatics Competition Diver

Purpose

Scubatics is a series of maneuvers similar to the aerobatic maneuvers done by an air show pilot, but performed underwater by a Scuba Diver or Skin Diver who is being moved through the water using a Diver Propulsion Vehicle, or Scooter.

Scubatics divers compete in shallow, confined water performing a series of lines, pivots, loops, rolls, and turns. Each maneuver will be graded by a panel of trained judges based on trajectory, trim, aesthetics, and difficulty; the diver with the highest score at the end of the contest wins. Prizes are award for first, second, and third place in each category of competition.

This class orients the diver to Scubatic competition, rules and regulations, DPV use, and safety. It also begins the training process by introducing the primary Scubatic maneuvers.

This class may be taken by either Scuba Divers or Skin Dive/Apnea Divers and is normally conducted over one day with a total of eight hours of academic and confined water instruction.

The goals Scubatics Competition training are:

1. To develop the student's understanding of the rules and regulations of Scubatic competition.
2. To enable the student to safely use a DPV, or scooter, in shallow, confined water.
3. To qualify and certify students to participate in International Scubatics Federation certified competition and training camps.

Prerequisites

1. Minimum age of 16
2. Completed UTD registration process

Course Limits

1. Course takes place in confined water
2. Scuba divers may be in traditional back mount of side mount or Scubatics gear configuration
3. Skin Divers/Apnea Divers may choose whether or not to use a snorkel

Course Content

The Scubatics Competition Diver course introduces the student to the Standards and Procedures, Rules and Regulations, and Judging Criteria of the International Scubatics Federation. The class will review the Scubatics Diagramming System and the Catalog of Maneuvers, along with the Scubatics gear configuration.

The student will be introduced to the Scubatic maneuvers in confined water, will learn how to manage and maintain a DPV/scooter, and will begin to join maneuvers together into a Scubatics competition sequence.

Course requirements include a minimum of eight(8) hours of academics and water sessions.

Online Classroom Courses & Text

1. International Scubatics Federation Standards and Procedures
2. Scubatics 1 DVD recommended

Academic Topics

1. International Scubatics Federation organization
2. History of Scubatics
3. Rules and Regulations
4. The maneuvers
5. The catalog of maneuvers
6. Equipment configurations
7. Judging criteria
8. Scubatics sequences
9. Scooter maintenance
10. Scubatics gear Configuration
11. Contest operating procedures
12. Competition techniques

Land Drills & Topics

1. Walking through the Scubatics sequence
2. Emergency procedures
3. Scooter use and maintenance
4. Pre-dive checks
5. Ascending maneuvers with a scooter and lung over-expansion prevention

Required Dive Skills & Drills

1. Basic scuba or skin dive skills, proper weighting
2. Emergency procedures with the scooter, runaway, etc.
3. Lines, pivots, rolls, turns, loops
4. Ascending maneuvers and breathing
5. Combining maneuvers into a sequence
6. Positioning and the Scubatics box
7. Scooter use and safety

Equipment Requirements

All Scubatics Scuba divers are to be outfitted with single tank open circuit equipment. Tank size may vary from 6 cu ft to 80 cu ft.

Required Equipment for the Scuba category includes:

1. Mask
2. One first stage regulator
3. One second stage regulator
4. One submersible pressure gauge attached to the first stage
5. One scuba cylinder any size 6 cu ft to 80 cu ft
6. One scooter, or DPV

3-140 Annual Dive Review

Purpose

The Unified Team Diving Annual Dive Review is designed as an organized, structured way to maintain currency in diving. Anyone who has not been out of the water for long enough to feel even the slightest bit uncomfortable should have their skills reviewed with an instructor. At a minimum, every diver should spend some time with an instructor at least once each year.

With an ADR, you can choose the level of review you would like, then participate in the UTD online classroom for that class before you see your instructor. You will then do a day of diving at the level of your ADR – for example if you are a Tech 2 diver taking a Tech 2 ADR, you can do a Tech 2 dive. If you are a recreational diver, you'll do a dive to your current training limits.

The Annual Dive Review is a academic program followed by one day of diving. Recreational ADR's will generally have two dives, technical ADR's will generally have one dive.

UTD ADR's may be taught by UTD Instructors and UTD Divemasters.

Prerequisites

Must be a certified diver from a recognized Scuba Certification Agency trained and certified at the level of your Annual Dive Review or higher.

Course Limits

Same as the UTD class which corresponds to the specific ADR.

Texts

The program includes UTD's online classroom and an in-water skills review with a UTD instructor. Participate in an ADR can be at any level up to the highest level of the student's training.

Course Limits

Same as the UTD class which corresponds to the specific ADR.

Course Content

The Annual Dive Review academic materials are the same as those for a UTD class at the equivalent level as the ADR. The ADR incorporates a review of academic materials and a day of diving to the level of the ADR.

Classroom and Text

1. Required Online Classroom – same material as the class being reviewed.
2. Worksheet for that class.
3. DVD appropriate to the level of class.

Academic Topics

Same as the UTD class which corresponds to the specific ADR.

Land Drills and Topics

Same as the UTD class which corresponds to the specific ADR.

Dive Skills and Drills

Same as the UTD class which corresponds to the specific ADR.

Equipment Requirements

Same as the UTD class which corresponds to the specific ADR.

3-142 Crossover, Experience, and Evaluation Dives

Purpose

Crossover, Experience, and Evaluation Dives may be performed by any UTD Instructor. These dives may be to evaluate a student for a UTD crossover certification; they may be experience dives or guided dives; or they may be dives to evaluate a student's experience and skill level prior to that student enrolling in a UTD class.

This section does not apply to any workshop or speciality that requires a UTD certification card. For example, a student requiring dry suit training who does not require a certification card would be covered under this section, but a student who does require a certification card for dry suit training would have to comply with the Dry Suit speciality listed in the Standards and Procedures.

Certified divers performing the duties of class videographer are covered under this section. Videographers may join any UTD class at or below their level of certification. Videographers do not effect student to instructor ratios.

A UTD instructor or Divemaster may lead an experience dive at or below his or her level of training. As all UTD Instructors are granted Divemaster status, a UTD Instructor may lead a dive to his or her highest level of training, which may be a higher level than the Instructor is certified to teach.

Prerequisites

Must have completed the student registration process. Student Registration, Wavier and release, Medical History. The use of prescription drugs must be authorized prior to the onset of diver training by a physician. Birth Control pills are excepted.

Course Limits

Course duration is at the discretion of the UTD Instructor or UTD Divemaster. Pursuant to the level of training of the student. A Crossover, Experience, or Evaluation Dive may not be deeper or beyond the certification level of the student.

No overhead environments, except:

1. A UTD Cave Instructor may escort a certified cave diver on a dive adhering to UTD Cave 1 limitations for the purpose of experience or evaluation.
2. A UTD Wreck Penetration Instructor may escort a certified wreck diver on a dive adhering to UTD Wreck Penetration 1 limitations for the purpose of experience or evaluation.

3.

Course Content

At the discretion of the UTD Instructor or UTD Divemaster.

Course Limits

At the discretion of the UTD Instructor or UTD Divemaster, but in no case beyond the certification level of the student.

Classroom and Text

None required.

Academic Topics

At the discretion of the UTD Instructor or UTD Divemaster.

Land Drills and Topics

At the discretion of the UTD Instructor or UTD Divemaster.

Dive Skills and Drills

At the discretion of the UTD Instructor or UTD Divemaster.

Equipment Requirements

At the discretion of the UTD Instructor or UTD Divemaster.

3-144 Online Class

Purpose

The online class is designed to educate the student on a variety of topics and subject matter that do not require any In-Water Activities. These classes can be conducted independently of an instructor and solely online or over a web conference. They do not require direct instructor supervision to complete or become certified. Once completed, the student will receive a certificate of completion and/or certification.

Current Online Classes

Ratio Deco

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Prerequisites

Completed UTD registration process.

Duration

This is an academic-only class are completed in students own time There are no dives required for this class.

Course Limits

1. As this is an academic-only class, standard ratios do not apply.

Course Content

1. Specific per class

Texts

1. Online Classroom Materials are included

Academic Topics

1. As Per Class

Required Dive Skills & Drills

No dives required.

Equipment Requirements

No equipment required.

3-150 Essentials Of Recreational Diving

Purpose

The Essentials of Recreational Diving course gives every diver an opportunity to learn the personal skills needed to participate in a unified team and be in the water as a “thinking diver.”

First up is buoyancy. Precise buoyancy, combined with a horizontal trim position, is the hallmark of control in the water You’ll learn to effortlessly hold your position in the water, which leads to the next set of skills: propulsion, where you’ll learn five different kicks that eliminate silting and increase your control, allowing you to move both forward and backward. Other skills include proper air sharing procedures, team protocols, gas planning, ascent strategies, and much more.

This class is the point of entry for all previously certified divers and is the prerequisite for all other recreational UTD classes (except UTD Rec 1). Essentials of Rec is designed to cultivate the core techniques required by all sound diving practice, regardless of level or environment. Essentials of Recreational Diving acts as a bridge between conventional training and UTD’s more demanding curriculum.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 16 years of age.
3. Must be a certified open water diver from a recognized training agency
4. Must be able to swim a distance of at least 50 feet/15 meters on a breath hold.
5. Must be able to swim at least 300 yards/275 meters in less than 14 minutes without stopping.

Course Limits

1. General training limits as outlined in Section 1
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions.
3. Maximum depth 60 feet/18 meters or 100 feet/30 meters if the student is Nitrox certified.
4. No stage decompression
5. No overhead environment diving

Course Content

The Essentials of Recreational Diving is normally conducted over a 3-day period. Combining lecture, practical (in-water) sessions and video debriefings, this course focuses on cultivating the foundational skills required by all diving practice. It is focused on increasing diving fun by reducing stress and increasing diver proficiency through proper control of buoyancy, trim, propulsion, teamwork, and other UTD principles. This is the introductory course for certified divers into the realm of UTD style diving.

Course requirements include a minimum of 4 (4) hours of academics and four (4) in water sessions.

Classroom & Text

1. Required Online Classroom Materials – Essentials of Recreational Diving

2. Essentials Worksheet (PDF) and worksheets
3. Essentials of Recreational Diving DVD is recommended

Academic Topics

1. UTD organization
2. Teaching Methodology
3. Essentials Diving Principles
4. Diving Proficiency with in water skills
5. Buoyancy Control and Trim
6. Streamlining & Equipment Configuration
7. Propulsion Techniques
8. Air Sharing and Valve drill procedures
9. Situational Awareness
10. Communication
11. Gear Configuration
12. Breathing Gas Overview
13. Dive Planning & Gas Management

Land Drills & Topics

1. Dive team protocols
2. S-drill and Valve Drill
3. Equipment fit and function
4. Propulsion Techniques
5. Pre-Dive Drills

Dive Skills & Objectives

1. All skills and drills as outlined in the general diving skills as outline in Section 1.5
2. Emergency Out of Air management, including a direct ascent to the surface
3. Demonstrate the ability to deploy a lift bag/surface marker
4. Demonstrate good buoyancy and trim
5. Demonstrate proficiency with Basic 6 Open water skills
6. Kicking techniques including one that is appropriate for silty and/or delicate environments
7. Familiarization with UTD configuration and equipment

3-152 Essentials of Technical Diving

Purpose

The Essentials of Technical Diving is the first step to move you from ‘Recreational’ diver to ‘Technical’ Diver. Essentials of Tech gives you all the personal skills you need to move to a training program that increases both depth and time in the water.

Essentials of Tech takes place in 20-30’ / 6-10m of open water. It is a personal skills class that prepares you for technical depths by advancing your control of buoyancy, trim, and propulsion, while introducing you to more advanced air sharing procedures and deco bottle handling protocols. The class also introduces you to more advanced gas planning and more complicated ascent strategies.

Essentials of Tech acts as a bridge between conventional training and UTD’s more demanding technical curriculum and focuses on training you to become a “Thinking Diver,” regardless of whether you are going to move forward with technical training, or are just looking to become a more highly skilled recreational diver. Essentials of Tech may be taught with Nitrox academics providing a Nitrox certification to a maximum depth of 60’/18m.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 18 years of age.
3. UTD Rec 2 (Nitrox) or equivalent.
4. Minimum of 50 dives beyond open water certification, 25 of which must be non-training dives.
5. All participants must be able to swim at least 300 yards/275 meters in 14 min or swim at least 600 yards/550 meters in 18 minutes with mask & fins.
6. All participants must be able to swim a distance of at least 50' (15m) on a breath hold or demonstrate an air share swim where the OOA diver swims at least 50' (15m) to the donating diver.
7. All participants must tow a diver in full equipment, in the environment they will be diving in, for 10 minutes.
8. All participants must demonstrate the rescue of a diver simulating oxygen toxicity.

Course Limits

1. General training limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 6:1 during any in-water training and should be adjust down according to conditions and visibility
3. Maximum depth 60 feet/18 meters
4. Standard gas is Nitrox 32
5. Stay within no decompression limits
6. No overhead environment diving

Course Content

The Essentials of Tech is normally conducted over 3-day period combining lecture, practical (in-water) sessions and debriefings with a minimum of 24 hours of instruction. This course focuses on cultivating the foundational skills required by all diving practice. It is focused on increasing diving fun by reducing stress and increasing diver proficiency through proper control of

buoyancy, trim, propulsion, teamwork, and other UTD principles. This course also introduces a student to the handling of one decompression bottle.

Course requirements include a minimum of eight (8) hours of academics and four (4) in water sessions.

Online Classroom Courses & Text

1. Online Classroom Materials – Essentials of Tech
2. Essentials of Tech Worksheet
3. Essentials of Tech DVD is recommended

Academic Topics

1. UTD organization
2. Teaching Methodology
3. Essentials of Tech Diving Principles
4. Diving proficiency with in water skills
5. Buoyancy Control and Trim
6. Streamlining & Equipment Configuration
7. Propulsion Techniques
8. Air Sharing and Valve Drill procedures
9. Situational Awareness
10. Communication
11. Gear Configuration
12. Breathing Gas Overview
13. Dive Planning & Gas Management

Land Drills & Topics

1. Dive team protocols
2. S-drill and Valve Drill
3. Equipment fit and function
4. Propulsion Techniques
5. Pre-Dive Drills
6. Use of safety spools and lift bag
7. Deco bottle use (Deploy and Stow)
8. Basic navigation skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5
2. Emergency Out-of-Air management, including a direct ascent to the surface
3. Demonstrate the ability to deploy a lift bag/surface marker
4. Demonstrate the ability to deploy and stow a deco/stage bottle regulator
5. Demonstrate good buoyancy and trim
6. Demonstrate proficiency with Basic 6 Open water skills
7. Demonstrate a valve shutdown drill
8. Kicking techniques including one that is appropriate for silty and/or delicate environments, back-kick, helicopter turn.
9. Familiarization with UTD configuration and equipment
10. Demonstrate proficiency with Toxing Diver rescue.
11. Remove and replace scuba gear at surface.

3-160 Essentials of Overhead Diving

Purpose

The Essentials of Overhead Diving course is designed to cultivate the essential techniques required by all sound overhead and wreck/cave diving practice. It functions as an entry point for all previously certified divers and as stepping stone for all other UTD overhead based classes such as overhead protocols, cave and wreck penetration classes. Essentials of Overhead acts as a bridge between conventional training and UTD's more demanding overhead curriculum.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 18 years of age.
3. UTD Rec 2 (Nitrox) or equivalent.
4. Minimum of 50 dives beyond open water certification, 25 of which must be non-training dives.
5. All participants must be able to swim at least 300 yards/275 meters in 14 min or swim at least 600 yards/550 meters in 18 minutes with mask & fins.
6. All participants must be able to swim a distance of at least 50' (12m) on a breath hold or demonstrate an air share swim where the OOA diver swims at least 50' (15m) to the donating diver.
7. All participants must tow a diver in full equipment, in the environment they will be diving in, for 10 minutes.
8. All participants must demonstrate the rescue of a diver simulating oxygen toxicity.

Course Limits

1. General training limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 6:1 during any in-water training and should be adjust down according to conditions and visibility
3. Maximum depth 60 feet/18 meters
4. Standard gas is Nitrox 32
5. No stage decompression
6. No overhead environment diving

Course Content

The Essentials of Overhead is normally conducted over 3-day period with a minimum of 24 hours of instruction combining lecture, practical (in-water) sessions and debriefings. This course focuses on cultivating the foundational skills required by all diving practice. It is focused on increasing diving fun by reducing stress and increasing diver proficiency through proper control of buoyancy, trim, propulsion, teamwork, and other UTD principles. This course also introduces a student to the handling of a guideline.

Course requirements include a minimum of eight (8) hours of academics and four (4) in water sessions.

Online Classroom Courses & Text

1. Online Classroom Materials – Essentials of Overhead Diving
2. Essentials of Overhead Gas Planning Worksheet
3. Essentials of Tech DVD is recommended

Academic Topics

1. UTD organization
2. Teaching Methodology
3. Essentials of Overhead Diving Principles
4. Diving proficiency with in water skills
5. Buoyancy Control and Trim
6. Streamlining & Equipment Configuration
7. Propulsion Techniques
8. Air Sharing and Valve Drill procedures
9. Situational Awareness
10. Communication
11. Gear Configuration
12. Breathing Gas Overview
13. Dive Planning & Gas Management
14. Guideline use

Land Drills & Topics

1. Dive team protocols
2. S-drill and Valve Drill
3. Equipment fit and function
4. Propulsion Techniques
5. Pre-Dive Drills
6. Use of primary reels and safety spools
7. Basic navigation skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5
2. Emergency Out-of-Air management, including a direct ascent to the surface
3. Demonstrate good buoyancy and trim
4. Demonstrate proficiency with Basic 6 Open water skills
5. Demonstrate a valve shutdown drill
6. Kicking techniques including one that is appropriate for silty and/or delicate environments, back-kick, helicopter turn.
7. Familiarization with UTD configuration and equipment
8. Demonstrate proficiency with Toxing Diver rescue.
9. Remove and replace scuba gear at surface.
10. Primary reel handling, line laying, line retrieving

Equipment Requirements

1. All equipment noted in paragraph 3.0
2. A minimum of one 200’/160m primary reel
3. One 70’/21m or 100’/30m safety spool

Equipment Requirements

1. All equipment noted in paragraph 3.0
2. One 40 cu.ft. decompression bottle

3-165 Essentials of Rebreather Diving

Purpose

The Essentials of Rebreather Diving course is designed to cultivate the essential techniques required by all sound CCR diving practices. It functions as an crossover for all **previously** certified CCR divers to apply UTD principals, configuration and philosophy to their diving practices, Essentials of Rebreather Diving acts as a bridge between conventional CCR training and UTD's training. This course is similar is skill requires and/or level as the UTD mCCR 1, expect UTD mCCR 1 is a rebreather certification class.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 21 years of age.
3. Must be a certified Diver.
4. Minimum of 25 non-training dives on CCR.
5. All participants must be able to swim at least 300 yards/275 meters in 14 min or swim at least 600 yards/550 meters in 18 minutes with mask & fins.
6. All participants must be able to swim a distance of at least 50' (12m) on a breath hold or demonstrate an air share swim where the OOA diver swims at least 50' (15m) to the donating diver.
7. All participants must be able to tow a diver in full equipment, in the environment they will be diving in, for 10 minutes.
8. All participants must demonstrate the rescue of a diver simulating oxygen toxicity or unconsciousness

Course Limits

1. General training limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 6:1 during any in-water training and should be adjust down according to conditions and visibility
3. Maximum depth 60 feet/18 meters
4. Standard bailout gases.
5. No staged decompression
6. No overhead environment diving

Course Content

The Essentials of Rebreather is normally conducted over 5-day period combining lecture, practical (in-water) sessions and debriefings. It involves a minimum of 24 hours of instruction encompassing classroom, 8 hrs or 480 min of in-water work and 8 hrs debriefing video review. This course focuses on cultivating the foundational skills required by all CCR diving practice. It is focused on increasing diving fun by reducing stress and increasing diver proficiency through proper control of buoyancy, trim, propulsion, teamwork, and other UTD principles. This course also requires a student to handle one stage or decompression bottle.

Course requirements include a minimum of eight (8) hours of academics and eight (8) in water sessions.

Texts

1. Online classroom materials - Essentials of Rebreather Diving

2. mCCR or pSCR checklist
3. mCCR gas planning worksheet
4. Operating manuals appropriate to the rebreather being used
5. Essentials of Technical DVD is recommended

Academic Topics

1. UTD organization
2. Teaching Methodology
3. CCR Diving Principles
4. Diving proficiency with in water skills
5. Buoyancy Control and Trim
6. Streamlining & Equipment Configuration
7. Propulsion Techniques
8. Air Sharing and Valve Drill procedures
9. Situational Awareness
10. Communication
11. Gear Configuration
12. Breathing Gas Overview
13. Dive Planning & Gas Management

Land Drills & Topics

1. Dive team protocols
2. Trim & Buoyancy
3. Propulsion Techniques
4. Basic 6 CCR skills
5. S-drill and Valve Drill
6. Equipment fit and function
7. Rescue Techniques
8. Pre-Dive Drills
9. Use of safety spools and lift bag
10. Deco bottle use (Deploy and Stow)
11. Basic navigation skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5
2. Understand and develop skills to master the priority assignment philosophy
3. Emergency Out-of-Air management, including a direct ascent to the surface
4. Demonstrate the ability to deploy a lift bag/surface marker
5. Demonstrate the ability to deploy and stow a deco/stage bottle regulator
6. Demonstrate good buoyancy and trim
7. Demonstrate proficiency with Basic 6 Rebreather skills
8. Demonstrate a valve shutdown drill
9. Kicking techniques including one that is appropriate for silty and/or delicate environments, back-kick, helicopter turn.
10. Familiarization with UTD configuration and equipment
11. Demonstrate proficiency with Toxing Diver rescue.

Equipment Requirements

1. Rebreather: A Fully-closed circuit rebreather that is configurable.
2. Tank/Cylinders: Students are required to use tanks/cylinders that provide sufficient diluent and bailout to meet rock bottom standards and have a single outlet valve, which allows for the use of a single first stages and allows the diver to manipulate the tank valves.
    a. A single oxygen bottle with a single first stage is used to supply the rebreather with O2.
    b. A single diluent bottle with a single first stage is used to supply the rebreather with air. All dives must start with a minimum of 40cf/1200 liters of gas in bailout cylinder.

3. Regulator: A single first-stage from the diluent tank must supply the diver with bailout gas. This must supply the Bail out valve (BOV) and at least one open circuit regulator, a 7 foot/2 meter long hose with second stage for air share donation purposes. This must also supply the BCD and Drysuit where applicable. There must be a pressure gauge on the diluent system to identify diluent/bailout gas quantity.

4. 1 Oxygen bottle with first stage and inlet hose to supply rebreather
5. Buoyancy Compensator: Back-mounted wings, mated with a harness and back plate
6. At least one depth-measuring device
7. Two timekeeping devices
8. Decompression tables
9. Mask and fins: fins must be of non-split variety
10. At least one cutting device
11. Underwater slate or Wet Notes
12. One reel/spool, with 100 feet/30 meters of line, per diver
13. Exposure suit appropriate for the duration of exposure
14. At least one surface marker buoy per diver

3-170 Essentials Of Scientific Diving

Purpose

The Essentials of Scientific Diving course integrates UTD's diving practices with the scientific community's need to work underwater. This course cultivates the essential techniques required by all sound diving practice and introduces the student to the basic techniques associated with scientific diving.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 16 years of age.
3. Must be a certified open water diver from a recognized training agency
4. Must be able to swim a distance of at least 50 feet/15 meters on a breath hold.
5. Must be able to swim at least 300 yards/275 meters in less than 14 minutes without stopping.

Course Limits

1. General training limits as outlined in Section 1
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises, and any direct in-water training. The Instructor has the discretion to reduce ratios based on environmental conditions.
3. Maximum depth 60 feet/18 meters or 100 feet/30 meters if the student is Nitrox certified.
4. No stage decompression.
5. No overhead environment diving.

Course Content

The Essentials of Scientific Diving course is a skills-based class and is normally conducted over a 4 to 5 day period. It involves a minimum of 32 hours of instruction, encompassing classroom review, in-water work and debriefings. Course requirements include a minimum of eight (8) hours of academics and eight (8) in water sessions.

Essentials of Scientific Diving combines lecture, practical (in-water) sessions and debriefings. This course focuses on cultivating the foundational skills required by all scientific diving practice. It is focused on increasing diving efficiency by reducing stress and increasing diver proficiency through proper control of buoyancy, trim, propulsion, teamwork, and other UTD principles, and integrates these diving practices with the task loading associated with working underwater.

Classroom & Text

1. Required Online Classroom Materials – Essentials of Scientific Diving
2. Essentials Gas Planning Worksheet (PDF)
3. Essentials of Recreational Diving DVD is recommended

Academic Topics

1. UTD organization
2. Teaching Methodology
3. Essentials Diving Principles
4. Diving Proficiency with in water skills

5. Buoyancy Control and Trim
6. Streamlining & Equipment Configuration
7. Propulsion Techniques
8. Air Sharing and Valve drill procedures
9. Situational Awareness
10. Communication
11. Gear Configuration
12. Breathing Gas Overview
13. Dive Planning & Gas Management
14. Introduction to Scientific Diving
15. Environmental Awareness and Navigation
16. Working Underwater
17. Tools of Scientific Diving
18. Data Collection
19. Species Identification
20. Animal Collection
21. Small Boat Operations
22. Hazards of Scientific Diving
23. Introduction to Aquariums

Land Drills & Topics

1. Dive team protocols
2. S-drill and Valve Drill
3. Equipment fit and function
4. Propulsion Techniques
5. Tools of Scientific Diving
6. Small Boat Safety
7. Navigation and Environmental Awareness
8. Pre-Dive Drills

Dive Skills & Objectives

1. All skills and drills as outlined in the general diving skills as outline in Section 1.5
2. Demonstrate superb team awareness skills
3. Emergency Out of Air management, including a direct ascent to the surface
4. Demonstrate the ability to deploy a lift bag/surface marker
5. Demonstrate good buoyancy and trim
6. Demonstrate proficiency with Basic 6 Open water skills
7. Kicking techniques including one that is appropriate for silty and/or delicate environments
8. Familiarization with UTD configuration and equipment
9. Basic Navigation and Environmental Awareness
10. Basic Search and Retrieval Techniques
11. Use of tools of scientific diving, including but not limited to
    a. Transects
    b. Quadrats
    c. Collection Bags
    d. Lift Bags
    e. Marking Devices
12. Basic techniques of Data Collection, Species Identification, and Animal Collection
13. Small Boat Operations

3-180 Essentials of Recreational Side Mount Diving

Purpose

The purpose of the Essentials of Recreational Side Mount Diving class is to familiarize a certified recreational diver with the proper configuration, skills, knowledge, planning, organization, procedures, techniques, problems, hazards and enjoyment of side mounting a single tank for recreational diving. The course is designed to cross over the diver/student to Side Mount diving at a recreational level of certification. The certification limitations of the diver/student, once completed, are based on their current level of certification.

The goals of Essentials of Recreational Side Mount Diving training are to:

1. To develop the students' practical knowledge and understanding of side mounting a single tank while recreational diving.
2. To develop the students' practical knowledge of the "essential" in-water skills to include: buoyancy, trim, propulsion, basic 6, s-drills, valve drills, failures, smb deploy, ascent drills, and rescue skills all while side mount diving.
3. To enable the student to setup, organize and safely conduct side mount dives at their current level of recreational certification.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age of 16
3. Completed UTD registration process
4. UTD open water certification, or higher or equivalent
5. Standard gases are used. Nitrox and/or Helium certification required if breathing any gas with higher O2 content than 22% and/or using a helium based mix.

Course Content

This class requires a minimum of eight (8) hours of academics, three (3) hours of dry runs and at least four (4) in-water dives. These must be a combination of demonstration/critical skills and experience dives. Additional training and dives are at the discretion of the instructor and are based on the level of training the student is seeking.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. All dives are to maintain a working PO2 of no greater than 1.4
3. UTD Z-System or similar side mount configuration
4. Instructor to student ratio maximum 6:1 in the class

Course requirements include a minimum of eight (8) hours of academics, three (3) of dry runs and four (4) in water sessions.

Online Classroom Courses & Text

1. Online Classroom Materials - Essentials of Side Mount diving
2. Side Mount Recreational Gas Planning Worksheet
3. Essentials of Side Mount Diving DVD is recommended

Academic Topics

1. UTD organization
2. Side Mount Diving Principles
3. Diving proficiency with in water skills
4. Buoyancy control and trim
5. Streamlining and equipment configuration
6. Propulsion techniques
7. Air sharing and valve procedures
8. Situational awareness
9. Communication
10. Gear configuration
11. Breathing gas overview
12. Dive planning and gas management

Land Drills & Topics

1. Dive team protocols
2. Setup and Configuration of the Z-System or equivalent for recreational side mount diving
2. Air sharing drills
3. Equipment fit and function
4. Propulsion techniques
5. Pre-dive drills

Required Dive Skills and Drills

1. All skills and drills as outlined in the general diving skills as outline in Section 1.5
2. All skills requirements of requested crossover level as outlined by UTD Class structure
2. Emergency out of air management
3. Demonstrate the ability to deploy a lift bag/surface marker
4. Demonstrate good buoyancy and trim
5. Demonstrate proficiency with Basic 6 skills while configured in a side mount system
6. Kicking techniques including one that is appropriate for propulsion
7. Familiarization with Side Mount configuration and equipment

Equipment Requirements

Side Mount equipment configuration is designed to be simple and efficient. To get the most from your class it is advisable that you take the course in a complete UTD Side Mount system.

Required Equipment:

1. All equipment noted in paragraph 3.0
2. Z-System or equivalent for Side Mount diving

3-182 Essentials of Tech/Cave/Wreck Side Mount Diving

Purpose

The purpose of the Essentials of Tech/Cave/Wreck Side Mount Diving class is to cross over a diver at their current level of certification in the use of double side mount cylinders and/or appropriate decompression cylinders in preparation for advanced training in a Side Mount configuration.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age of 18
3. Completed UTD registration process
4. The use of prescription drugs must be authorized prior to the onset of diver training by a physician.
5. Standard gases are used. Nitrox and/or Helium certification required if breathing any gas with higher O2 content than 22% and/or using a helium based mix.

Course Content

This class requires a minimum of eight (8) hours of academics, three (3) hours of dry runs and at least four (4) in-water dives. These must be a combination of demonstration/critical skills and experience dives. Additional training and dives are at the discretion of the instructor and are based on the level of training the student is seeking.

The course focuses on cultivating the foundational skills required by all side mount diving practice. It is focused on increasing diving fun by reducing stress and increasing diver proficiency through proper control of buoyancy, trim, propulsion, teamwork, and other UTD principles. This course also introduces a student to the handling of one decompression bottle.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. All dives are to maintain a working PO2 of no greater than 1.4
3. UTD Z-System or similar Side Mount configuration
4. Instructor to student ratio maximum 6:1

Online Classroom Courses & Text

1. Online Classroom Materials - Essentials of Side Mount diving
2. Technical Diving Worksheet
3. Essentials of Side Mount Diving DVD is recommended

Academic Topics

1. UTD organization
2. Side Mount Diving Principles
3. Side Mount theory as it applies to technical diving to depths to 160’/48
4. Side Mount theory as it applies to overhead environments
5. Theory of independent doubles
6. Diving proficiency with in water skills
7. Buoyancy control and trim
8. Streamlining and equipment configuration

9. Propulsion techniques
10. Air sharing and valve procedures
11. Situational awareness
12. Communication
13. Gear configuration
14. Breathing gas overview
15. Dive planning and gas management

Land Drills & Topics

1. Dive team protocols
2. Setup and Configuration of the Z-System or equivalent for technical side mount diving
3. Air sharing drills
4. Equipment fit and function
5. Propulsion techniques
6. Setup and configuration of multi-cylinder Side Mount system.
7. Multiple cylinder gas management
8. Simulated failures of the stage bottles
9. Simulated failures of the distribution block
10. Simulated failure of the drive hose connection
11. Pre-dive drills

Required Dive Skills and Drills

1. All skills and drills as outlined in the general diving skills as outline in Section 1.5
2. All skills requirements of requested crossover level as outlined by UTD Class structure
3. Emergency out of air management
4. Demonstrate the ability to deploy a lift bag/surface marker
5. Demonstrate good buoyancy and trim
6. Demonstrate proficiency with Basic 6 skills while configured in a Side Mount system
7. Kicking techniques including one that is appropriate for propulsion
8. Familiarization with Side Mount configuration and equipment
9. Multiple cylinder gas management
10. Unclipped drive hose failure
11. Distribution block failure
12. Gas switch failures

Equipment Requirements

Side Mount equipment configuration is designed to be simple and efficient. To get the most from your class it is advisable that you take the course in a complete UTD Side Mount system such as the Z-System.

Required Equipment:

1. All equipment noted in paragraph 3.0
2. Z-System or equivalent for Side Mount diving
3. Appropriate multiple AL80 stage bottles and AL 40 deco bottles with appropriate Side Mount rigging

3-190 Side Mount Mini

Purpose

The purpose of the UTD Side Mount Mini is to introduce and cross over a diver in the use of the Z-System Side Mount configuration. This Mini presumes the student has completed Essentials of Rec, or Essentials of Tech, or equivalent. Specifically, this Mini is designed for someone who only needs the side mount-specific material from the Essentials of Recreational or Technical Side Mount Class.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age of 16
3. Completed UTD registration process
4. The use of prescription drugs must be authorized prior to the onset of diver training by a physician. Birth Control pills are excepted.
5. Standard gases are used. Nitrox and/or Helium certification required if breathing any gas with higher O2 content than 22% and/or using a helium based mix.

Course Content

This class requires a minimum of four hours of academics, two hours of dry runs, and at least two in-water skills dives. Additional training and dives are at the discretion of the instructor.

The course focuses on cultivating the practical normal and emergency skills required by all side mount divers, including side mount gas management and planning, normal in-water gas management procedures, and emergency procedures.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. All dives are to maintain a working PO2 of no greater than 1.4
3. UTD Z-System or similar Side Mount configuration
4. Instructor to student ratio maximum 6:1

Online Classroom Courses & Text

1. Online Classroom Materials - Essentials of Side Mount diving
2. Technical or Recreational Gas Planning Worksheet
3. Essentials of Side Mount Diving DVD is recommended

Academic Topics

1. Side Mount Diving Principles
2. Theory of independent doubles
3. Streamlining and equipment configuration
4. Air sharing and valve procedures
5. Gas management in independent doubles
6. Introduction to three or more bottles
7. Emergency procedures / System failures

Land Drills & Topics

1. Setup and Configuration of the Z-System or equivalent for technical side mount diving
2. Equipment fit and function
3. Setup and configuration of multi-cylinder Side Mount system.
4. Multiple cylinder gas management
5. Air sharing drills
6. Simulated failures of the stage bottles
7. Simulated failures of the distribution block
8. Simulated failure of the drive hose connection

Required Dive Skills and Drills

1. Demonstrate good buoyancy and trim
2. Familiarization with side mount configuration and equipment
3. Multiple cylinder gas management
4. Unclipped drive hose failure
5. Distribution block failure
6. Gas switch failures
7. Valve failures
8. Emergency out of air management / Air shares

Equipment Requirements

Side Mount equipment configuration is designed to be simple and efficient. To get the most from your class it is advisable that you take the course in a complete UTD Side Mount system such as the Z-System.

Required Equipment:

1. All equipment noted in paragraph 3.0
2. Z-System or equivalent for Side Mount diving
3. Appropriate multiple AL80 stage bottles and AL 40 deco bottles with appropriate Side Mount rigging

3-200 Technical Diver Program

UTD's Technical Diver program consists of a two step process - Technical Diver 1 (Tech 1) and Technical Diver 2 (Tech 2). They are building block classes that introduce a diver to deeper depths and staged decompression in a slow progression, first working on bottom skills, then ascent skills and finally mid-water skills. Upon completion of these two courses, divers are trained and qualified to dive to a depth of 160'/48m breathing Helitrox 25/25 and Trimix 21/35 and 18/45 with a single decompression gas of Nitrox 50 or 100% O2. Optionally, divers may train to use a stage bottle to conduct multiple technical dives in the same day.

3-210 Technical 1 Diver

Purpose

Technical Diver 1 (Tech 1) is the first UTD Technical Diver course that familiarizes divers with the use of Helitrox 25/25 as a safe bottom breathing gas for use to depths of 130'/39m with a single deco bottle of decompression gas of 100% O2 for accelerated decompression procedures.

Tech 1 training focuses on team skills, the diver's bottom skills, ascent skills expanding on the Essentials of Tech skills, and is designed to cultivate, integrate, and test these skills, which are essential for safe technical diving. This critical training will include bottom failures, mid-water failures, problem identification and resolution and building the capacity for progressively more challenging diving.

In this class, students will be trained in the use of double tanks/cylinders and in the potential failure problems associated with them; the use of 100% Oxygen for accelerated decompression, the use of Helium to minimize narcosis; and the applications of single decompression bottle diving with respect to decompression procedures.

This class provides an excellent foundation on which divers can build their technical diving experience in the 130'/39m range using a single decompression bottle. Later the diver can then complete Tech Diver 2, which provides a solid basis of critical skills for the Technical Diver venturing to 160'/48m range utilizing single decompression bottle and optionally a stage to conduct multiple technical dives in one day.

Successful completion of Technical Diver 1 qualifies a diver to use a normoxic Helium mix of 25/25 and 100% Oxygen for decompression. The limits for a UTD Tech 1 diver are 130'/39m and the use of one (1) decompression bottle with 100% O2. Accelerated decompression is limited to one oxygen cycle (see definitions in the appendix).

Note: Tech 1 and Tech 2 can be combined into a single 6 day program.

Note: An optional endorsement for use of a stage bottle is available to students who have completed a minimum of 25 dives at the Tech 1 level. This endorsement requires a minimum of one additional day of training and completion of the UTD Stage Mini.

Prerequisites

Must meet UTD General Course Prerequisites as outlined in Section 1.6.

1. Must be a minimum age of 21 years.
2. Must have a minimum of 75 dives beyond open water
3. UTD Essentials of Tech and Nitrox or equivalent.
4. A recommended 25 dives beyond the "Essentials of Tech" completion.

5. All participants must be able to swim at least 400 yards in 14 min or must be able to swim at least 600 yards in 18 minutes with mask & fins.
6. All participants must be able to swim a distance of at least 50' (15m) on a breath hold without swim aids such as fins.
7. All participants must surface-tow a diver in full equipment, in the environment they will be diving, for 10 minutes.
8. All participants must demonstrate a rescue of a diver simulating oxygen toxicity.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises and Experience Dives but 4:1 during any direct in-water critical skills training.
3. Maximum depth 130 feet / 39m.
4. Use of Standard gases, Helitrox 25/25, and 100% Oxygen.
5. 100% Oxygen decompression to be limited to one single cycle of oxygen per dive (see appendix for a definition of 'Oxygen Cycle."
6. No overhead environments.

Course Content

The UTD Tech 1 course is normally conducted over a 3 day period, and cumulatively involves a minimum of 24 hours of instruction, designed to provide a working knowledge of enriched air diving, use of Helitrox and decompression mixtures, and other operational considerations.

Course requirements include eight (8) hours of academics and a minimum of eight (8) dives, two (2) of which are student development dives, four (4) of which will be critical skill dives, and two (2) will be experience dives.

This class is a decompression class, so divers in this depth range must be aware of the potential for entering into decompression commitments and should be prepared.

Initial dives will be conducted in shallow water to test diver ability and to fill in any deficits in skill levels. The last two experience dives are to be dives at a max depth of 130'/39m breathing 25/25 and using 100% oxygen for decompression.

Online Classroom Courses & Text

1. Online Classroom Materials – Technical Diver
2. Technical Worksheet
3. Technical DVD is recommended

Academic Topics

1. Physics
2. Pressure and Gas laws review
3. Equations relevant for the planning, mixing, and use of enriched air
4. Physiology – Hypoxia, Hyperoxia
5. Oxygen toxicity – CNS, Pulmonary toxicity
6. Tracking multi-level, multi-dive, and multi-day exposures
7. Inert gas narcosis
8. Carbon dioxide toxicity
9. Introduction to Helitrox
10. Disadvantages of deep air

11. Double tanks, Decompression and/or Stage bottle
12. BC/harness
13. Regulators, depth gauges, pressure gauges, and hose routing
14. Manifolds
15. Reels and line protocols
16. Lift bag/surface marker buoys and spools
17. Bottom timers and time keeping devices
18. Exposure suit appropriate for the environment
19. Decompression illness
20. Accelerated and “on the fly” decompression
21. Decompression practices on back-gas and 100% oxygen
22. Generic tables, computers, and custom tables
23. Dive planning
24. Team planning
25. Gas matching
26. Emergency procedures
27. Analyzing and labeling gas supplies

Land Drills & Topics

1. Reel and guideline use
2. Dive team order and protocols
3. Touch contact
4. Manifold use and failures
5. Pre dive drills
6. Use of safety spools and reels
7. Basic navigation skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5
2. Procedures for gas failures (back gas and deco gas) including valve manipulation, air-sharing, and regulator switching as appropriate
3. Lift bag/surface marker buoy deployment
4. Buoyancy and trim
5. Able to comfortably demonstrate at least two propulsion techniques appropriate for delicate and/or silty environments
6. Use of touch contact for communication
7. Reel and guideline use (introduction only)
8. Equipment familiarization
9. Air-sharing scenarios to include a horizontal swim for at least 200 feet/60 meters
10. Demonstrate effective valve-management by switching regulators, shutting down a valve in less than 15 seconds and returning the valve to the open position again in less than 15 seconds and/or completing a complete valve-drill in 2 minutes

Equipment Requirements

Each student should have, and be familiar with, all of the following required equipment.

1. All equipment noted in paragraph 3.0
2. One 40 cu.ft. decompression bottle
3. One primary reel per team, with a minimum of 200 feet/60 meters of line

3-212 Technical 2 Diver

Purpose

The Technical Diver 2 is the second class in the UTD Technical Diver structure that prepares divers for the rigors of Technical diving (decompression) and to familiarize them with the use of two additional breathing gases (21/35 or 18/45), use of two different decompression mixtures (Nitrox 50 or 100% O2) and various approaches to conducting two technical dives in a day.

Tech 2 training focuses on critical skills including bottom and mid water failures cultivating, integrating, and ultimately testing the divers with blue water skills and their ability to deal with failures not only on the bottom but also during the accent and gas switch – skills which are essential for safe technical diving. This critical training will include problem identification and resolution, and building the capacity for progressively more challenging diving.

Students will continue to use double tanks/cylinders in addition to the use of a deco bottle of Nitrox 50 for accelerated and “on the fly” decompression. This class takes advantage of the use of Helium to minimize narcosis, and the application and benefit of single decompression bottle diving will be thoroughly explored.

The class will focus on Helium mixes as flexible and beneficial breathing gases for dives to 160’/48m while using a single decompression gas of Nitrox 50 for both accelerated decompression and safe rock bottom planning.

An optional endorsement for use of a stage bottle is available to students who have completed a minimum of 25 dives beyond the Tech 1 level.

Upon Successful completion of Technical Diver 2 a diver will become a fully qualified Technical Diver and be able to use standard Helium mixes of 25/25, 21/35, or 18/45 and decompression gases of 50% or 100% oxygen with the option of a stage bottle (if endorsed). The limits for a UTD Tech 2 diver are 160’/48m , one (1) decompression bottle and the use of one (1) stage bottle (if endorsed).

Note: Tech 1 and Tech 2 can be combined into a single 6 day program.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 21 years.
3. Must have a minimum of 75 dives beyond open water qualification.
4. UTD Tech 1 or equivalent with assessment.
5. All participants must be able to swim at least 400 yards in 14 min or must be able to swim at least 600 yards in 18 minutes with mask & fins, if not completed in Tech 1.
6. All participants must be able to swim a distance of at least 50' (15m) on a breath hold without the use of swimming aids such as fins.
7. All participants must tow a diver in full equipment, in the environment they will be diving in, for 10 minutes, if not completed in Tech 1.
8. All participants must demonstrate a rescue of a diver simulating oxygen toxicity.
9. The use of prescription drugs must be authorized prior to the onset of diver training by a physician. Birth Control pills are excepted.

The Tech 2 class is normally conducted over a 3 day period. It involves a minimum of 24 hours of instruction, encompassing both classroom and in-water work.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 6:1 during land drill, surface exercises and Experience Dives but 4:1 during any direct in-water critical skills training and experience dives
3. Maximum depth 160 feet / 48 meters
4. Standard bottom gases are Nitrox 32, 21/35, 18/45
5. Standard decompression gas is Nitrox 50%
6. No overhead environments

Course Content

The UTD Tech 2 course is normally conducted over a 3 day period, and cumulatively involves a minimum of 24 hours of instruction, designed to provide a working knowledge of enriched air diving, use of Helitrox and decompression mixtures, including history, physics, physiology, tables, and operational considerations.

Course requirements include eight (8) hours of academics and eight (8) dives, two (2) of which are student development dives, four (4) of which will be critical skill dives, and two (2) will be experience dives.

This class is a decompression class, so divers in this depth range must be aware of the potential for entering into decompression commitments and should be prepared.

Initial dives will be conducted in shallow mid-water to test the diver's ability and to fill in any deficits in skill levels. The last two experience dives are to be dives at a max depth of 160'/48m breathing 21/35 or 18/45 and using 50% oxygen for decompression.

Online Classroom Courses & Text

1. Online Classroom Materials – Technical Diver
2. Technical Worksheet
3. Technical DVD is recommended

Academic Topics

1. Inert gas narcosis
2. Carbon dioxide toxicity
3. Introduction to Helitrox
4. Disadvantages of deep air
5. Inert gas absorption and elimination
6. Decompression illness
7. Accelerated and "on the fly" decompression
8. Decompression practices on back-gas and enriched air
9. Generic tables, computers, and custom tables
10. Double tanks, Decompression bottle, Stage bottle
11. BC/harness
12. Regulators, depth gauges, pressure gauges, and hose routing
13. Manifolds
14. Lift bag/surface marker buoys and spools
15. Bottom timers and time keeping devices
16. Exposure suit appropriate for the environment
17. Dive planning

18. Team planning
19. Gas matching
20. Emergency procedures
21. Omitted decompression procedures
22. Miscellaneous issues including limited deco gas, out of air, buddy separation, etc.
23. Gas mixing
24. Analyzing and labeling gas supplies

Land Drills & Topics

1. Dive team order and protocols
2. Ascent protocols
3. Touch contact
4. Manifold Use and failures
5. Pre dive drills
6. Use of safety spools and reels
7. Lift bag deployment
8. Stage use and failures
9. Gas switch protocols for both stage (for stage bottle endorsement) and deco bottles

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5
2. Procedures for gas failures, including valve manipulation, air-sharing, and regulator switching as appropriate
3. Lift bag/surface marker buoy deployment
4. Buoyancy and trim
5. Be able to comfortably demonstrate at least two propulsion techniques appropriate for delicate and/or silty environments
6. Use of touch contact for limited and simulated zero visibility situations
7. Reel and guideline use
8. Demonstrate proficiency with the backward kick to display ability to maintain position.
9. Equipment familiarization
10. Air-sharing scenarios to include a horizontal swim for at least 200 feet/60 meters
11. Demonstrate reasonable proficiency with a single decompression bottle and gas switching
12. Demonstrate reasonable proficiency with a single stage bottle to include at least one valve drill and one failure to receive the Stage Bottle Endorsement.
13. Demonstration proficiency with effective decompression depth and time management

Equipment Requirements

Each student should have, and be familiar with, all of the following required equipment.

1. All equipment noted in paragraph 3.0
2. One 40 cu.ft./6L decompression bottle
3. One 80 cu.ft./11L stage bottle (If diver is seeking Stage Bottle Endorsement)
4. One primary reel per team, with a minimum of 200 feet/60 meters of line

3-220 – Techinal Diver Gold (2 Deco Bottle Endorsement)

Allows the use of both Nitrox 50 and 100% O2 bottles during dives at or above max training depth of 160'/48m. This is specifically to improve decompression and is not intended in any way to allow Technical divers to extend bottom time or extend decompression beyond the current 30-minutes decompression time limit. This endorsement enables the diver to carry two deco bottles to conduct the dives at the depth limitation of Technical Diver. Gas limits are 21/35 or 18/45.

Technical Gold limits the diver to a maximum of two bottles total, i.e. two deco bottles or one stage and one deco bottle.

Prerequisites:

1. UTD Technical Diver (Tech 1 and 2) - no equivalents
2. Technical Diver Stage Endorsement
3. 25 experience dives requiring stage decompression
4. In-water session(s) to cover
    - 70'/21m gas switch protocols
    - 20'/6m gas switch protocols

Student Skills Demonstration

1. Demonstrate ability to safely deploy a decompression bottle while maintaining buoyancy within a 3'/1m +- of target depth and within 1 minute. Demonstrate ability to safely stow a decompression bottle while maintaining buoyancy within +- 3'/1m of target depth and within 1 minute.
2. Demonstrate ability to pass and receive a deco bottle while maintaining buoyancy within +- 3'/1m of target depth and within 1 minute.

3-250 Technical Gas Blender

Purpose

This is an academic and hands-on class that prepares the student to blend breathing gas mixtures utilizing varying oxygen and helium contents. The class addresses the properties of the gases, common blending techniques, and safety.

The goals of Technical Gas Blender training are:

1. To develop the student's practical knowledge and understanding of mixing and blending high pressure breathing gases that include various amounts of oxygen and helium, preparing the student to safely fill back gas and decompression cylinders.
2. To enable the student to understand both mathematical and computerized methods of establishing various breathing gas mixes.
3. To create in the student a method of gas blending that is organized, safe, and repeatable.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age of 21
3. Complete the UTD registration process

Duration

This is an academic and hands-on class conducted over a minimum of eight (8) hours. There are no dives required for this class.

Course Limits

1. As this is an academic-only class, standard ratios do not apply.

Course Content

The UTD Gas Blender course is normally taught over eight hours. Approximately half of that time is spent reviewing the academic topics related to technical gas blending. The balance of the time is spent on the practical aspects of gas mixing and fill station procedures.
The course covers all the common methods of mixing and filling Scuba breathing cylinders including, but not limited to, partial pressure blending, continuous flow blending, the use of membrane systems, and cascading and boosting gases. Topics also include analyzing the gases and labeling procedures for tanks.

Also covered are the safety aspects of handling potentially dangerous gases such as oxygen.

Online Classroom Courses & Text

1. Online Classroom Materials – Technical Gas Blender
2. Technical Gas Blender Worksheet
2. Technical Gas Blender Text

Academic Topics

1. An overview and history of gas blending

2. Air filtration and purity standards
3. The gases: oxygen, nitrogen, helium, CO2, argon
4. UTD Standard gases
5. The effects of pressure and heat
6. Oxygen handling procedures and safety
7. Partial pressure blending
8. Continuous flow blending
9. Membrane-style blending
10. Formulas and methods of establishing Nitrox mixes
11. Formulas and methods of establishing Helium mixes
12. Fill station and transfill systems and methodology
13. Gas boosters
14. Analyzing oxygen and helium levels in breathing gases
15. Scuba cylinder labeling protocols

Required Dive Skills & Drills

1. No dives required.

Equipment Requirements

Technical Gas Blending equipment including, but not limited to:

1. A supply source of Helium and Oxygen
2. A supply source of compressed air
3. Transfill and blending whips
4. Oxygen and Helium gas analyzers
5. Tank labeling materials

3-260 Regulator Repair and Field Maintenance

Purpose

This is an academic and hands-on class that prepares the student to perform basic maintenance and field service of first and second stage Scuba regulators.

The goals of Regulator Repair and Field Maintenance training are:

1. To develop a basic understanding of how first and second stages work.
2. To be able to perform basic routine and emergency maintenance and simple repairs.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age of 21
3. Complete the UTD registration process

Duration

This is an academic and hands-on class conducted over a minimum of eight (8) hours. There are no dives required for this class.

Course Limits

1. As this is an academic-only class, standard ratios do not apply.

Course Content

The UTD Regulator Repair and Field Maintenance course is normally taught over two to three days. Approximately half of that time is spent reviewing the academic topics related to repair and maintenance. The balance of the time is spent on the practical aspects of disassembling, reassembling, and testing regulators.

The course covers a limited number of brands of regulators and focuses more on concepts than brand specifics. This class does not “factory certify” someone to service regulators commercially.

Online Classroom Courses & Text

1. Online Classroom Materials – Regulator Repair and Field Maintenance
2. Schematic Drawings
3. Regulator Repair and Field Maintenance test

Academic Topics

1. An overview of how first and second stages work
2. Breakdown of first stages
3. Assembly of first stages
4. Breakdown of second stages
5. Assembly of second stages
6. Routine maintenance

Required Dive Skills & Drills

1. No dives required.

Equipment Requirements

Regulator Repair and Field Maintenance equipment including, but not limited to:

1. First stage regulators
2. Second stage regulators
3. Hand tools
4. Test gauges

3-255 Cylinder and Valve Technician

Purpose

This is an academic hands on class that prepares the student to visually inspect and oxygen clean aluminum and steel SCUBA cylinders and valves. The class addresses the proper care, maintenance and inspection of cylinders and valves, as well as proper safety precautions.

The goals of Cylinder and Valve Technician training are:

1. To develop the student's practical knowledge in the proper procedures of visually inspecting SCUBA cylinders, preparing them to visually inspect cylinders to determine whether they are suitable for use
2. To develop the student's practical knowledge in the proper procedures of visually inspecting SCUBA cylinder valves and manifolds, preparing them to visually inspect cylinders to determine whether they are suitable for use.
3. Create a visual inspection method that is consistent, safe, organized and meets Compressed Gas Association Standards, US Department of Transportation Regulations, Transport Canada's Regulations and manufacturers' recommendations

Prerequisites:

1. Must be 21 years of age.

Duration

This is an academic and hands on class conducted over a minimum of eight (8) hours. There are no dives required for this class.

Course Limits

1. As this is an academic class, standard ratios do not apply

Course Content

Prior to the start of the course, the student will complete the UTD academic program. Following that, the Cylinder and Valve Technician Course is normally taught over eight hours. Approximately half of that time is spent reviewing cylinder inspection criteria per CGA Standards, DOT and TC Regulations and manufacturers' recommendations as well as oxygen cleaning procedures for the safe handling of cylinders and valves that will be exposed to high percentage oxygen mixes. The balance of the course will focus on the practical application of cylinder and valve inspection, allowing the students to inspect and oxygen clean their own cylinders and valves under the direct supervision of a UTD Instructor.

Online Classroom Courses and Text

1. Online Classroom Materials – Cylinder and Valve Technician
2. Cylinder and Valve Technician Inspection Checklist
3. Cylinder and Valve Technician Quick Reference Guide

Academic Topics

1. Visual inspection standards
2. Oxygen cleaning standards

3-300 Trimix Diver Program

UTD's Trimix Diver program, like the Tech diver program, is also a two-step process, consisting of Trimix 1 and Trimix 2. This building block concept adds depth and complexity in small steps, building on a the Technical Diver's existing skills. A student may take these classes individually, allowing time between to gain experience, or may combine them into one 6-day class if prepared. By the completion of Trimix 2, a diver is qualified to 250'/75m using all standardized bottom and decompression mixes, multiple stage bottles and decompression bottles.

3-310 Trimix 1 Diver

Purpose

The UTD Trimix Diver 1 is the first course in the Trimix Diver program and is designed to continue a diver's pursuit of technical diving, giving them the ability to use hypoxic Trimix blends and to carry and manage two (2) decompression bottles (Nitrox 50 and O2). The limits of this certification will allow the diver to conduct dives beyond the 160'/48m limits of the Technical Diver. New material includes the nuances of Trimix (Hypoxic mixes), the gas management and failure management of multiple decompression bottles, the in water management of these two decompression bottles and other academic issues and understanding of the dives to 200'/60m. When combined with Trimix Diver 2, this class provides the solid basis of critical skills for the Trimix Diver Program .

Successful completion of Trimix Diver 1 qualifies a diver to use Trimix 18/45 and Nitrox mixes up to and including 100% Oxygen to a depth of 200 feet/60 meters utilizing two (2) decompression bottles with a maximum of one hour of decompression.

Note: UTD Trimix Diver 1 and 2 can be combined into a 6 day format.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 21 years.
3. UTD Technical Diver 1 and 2 or equivalent.
4. UTD Rescue and Emergency Procedures or equivalent.
5. Minimum of 200 logged dives with at least 75 dives on double tanks, of which at least 25 are utilizing single stage/or deco bottle and at least 25 dives beyond 100'/30m (utilizing Helitrox). Students should have completed at least 25 dives in personal training scenarios and environments in preparation for the Trimix 1 class.
6. All participants must be able to swim at least 400 yards in 14 min or must be able to swim at least 800 yards in 18 minutes with mask & fins.
7. All participants must be able to swim a distance of at least 50' (12m) on a breath hold or demonstrate an air share swim where the OOA diver swims at least 50' (15m) to the donating diver.
8. All participants must surface-tow a diver in full equipment, in the environment they will be diving, for 10 minutes.
9. All participants must demonstrate a rescue of a diver simulating oxygen toxicity.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 4:1 during any in-water training
3. Maximum depth 200 feet / 60 meters

4. Standard bottom gases are Nitrox 32, 21/35, 18/45.
5. Standard decompression gases are Nitrox 50 and 100% O2.
6. Two (2) decompression bottles.
7. No overhead environment diving.

Course Content

This class is structured around a 3 consecutive-day structure. (The class may be combined with Trimix 2 for a consecutive 6-day class.) Trimix 1 involves a minimum of 6 hours of classroom instruction and 6 dives (4 practice dives, and 2 experience dives with Trimix, with all dives conducted with multiple deco bottles), designed to provide a working knowledge of Trimix, including an understanding of the history and practice of decompression, physics, physiology, table analysis, ratio deco (deco on the fly) and operational considerations. This class is a decompression class, so divers in this depth range must be aware of the potential for entering into decompression commitments and should be prepared.

Online Classroom Courses & Text

1. Online Online Classroom Materials – Trimix Diver
2. Trimix Diver Worksheet
3. Technical DVD is recommended

Academic Topics

1. UTD organization
2. Limits of training, and course completion requirements
3. Advanced Gas Management including Stage and decompression gas concerns
4. Review of decompression, risk, diving physiology
5. Accelerated, omitted, and “on the fly” decompression calculation
6. Dive logistics and planning

Land Drills & Topics

1. Multi Decompression bottle use
2. Dive team order and protocols
3. Gas switching procedures and protocols
4. Decompression stop management
5. Use of safety spools and reels

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5
2. Review procedures for gas failures, including valve manipulation, air-sharing, and regulator switching (as appropriate)
3. Effectively and comfortably demonstrate the ability to deploy a lift bag/surface marker buoy in less than two minutes while hovering stationary. Participants should not vary in depth more than 5 feet/1.5 meters
4. Demonstrate the clean and effective removal and exchange of multiple deco bottles while hovering horizontal. The participant must be capable of removing and replacing each of at least two bottles in less than one minute, i.e. one minute per bottle, including an understanding and demonstrating of “back-gas breaks.”
5. Be able to comfortably demonstrate at least two propulsion techniques appropriate for delicate and/or silty environments
6. Equipment familiarization

7. Demonstrate excellent buoyancy control skills while conducting stage and decompression gas switches

Equipment Requirements

1. All equipment noted in paragraph 3.0
2. Two 40 cu.ft./6L decompression bottles
3. One primary reel per team, with a minimum of 200 feet/60 meters of line

3-312 Trimix 2 Diver

Purpose

The Trimix Diver 2 class is the second step in the diver's pursuit for Trimix Diver and is designed to further extend the range the student achieved in Trimix 1. Students will continue to refine their skills including the use of double bottles and multiple deco bottles and will add the use of multiple bottom stages while becoming familiar with the failures associated with them.

This mastery level class reviews and refines skills learned in the Trimix Diver 1. The curriculum is designed to transform two deco bottle technical divers into multi stage/deco technical divers (3 or more stage bottles), completing the tool box required for dives in the 200'-250' range. The addition of a bottom stage greatly increases the safety in terms of gas reserves, and also increases the flexibility for dive planning. At the same time, it increases task loading exponentially, and greatly increases the need for proficient and expedient bottle handling. Course participants will gain experience working with a variety of different gas mixtures for use as bottom mix and bottom stage and decompression gases. This information culminates in a true understanding of "best gas" selection in the 10 fsw (3m) to 250 fsw (75m) range.

Upon successful completion of the Trimix Diver 2 class the student will receive the full Trimix Diver qualification which allows the use of Hypoxic Helium mixes to 15/55 and Nitrox decompression mixes up to and including 100% Oxygen to a training depth of 250 feet/75 meters

*** Note:** UTD Trimix Diver Part 1 and Part 2 can be combined to a 6 day format

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 21 years.
3. UTD Trimix Diver 1 or equivalent with assessment.
4. Minimum of 250 logged dives with at least 100 dives on double tanks, of which at least 25 are utilizing single stage and at least 25 dives beyond 100 feet/30 meters (utilizing Helitrox). Students should have completed at least 25 dives with in personal training scenarios and environments in preparation for the Trimix 2 class.
5. All participants must be able to swim at least 400 yards in 14 min or must be able to swim at least 800 yards in 18 minutes with mask & fins.
6. All participants must be able to swim a distance of at least 50' (12m) on a breath hold or demonstrate an air share swim where the OOA diver swims at least 50' (15m) to the donating diver.
7. All participants must surface-tow a diver in full equipment, in the environment they will be diving in, for 10 minutes.
8. All participants must demonstrate a rescue of a diver simulating oxygen toxicity.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 4:1 during any in-water training
3. Maximum depth 250 feet / 75m
4. Standard bottom gases are 21/35, 18/45, 15/55
5. Standard deco gases are 21/35, 35/25, Nitrox 50 and 100% O2
6. No overhead environment diving.

Course Content

This class is structured around a 3 day class. The course involves a minimum of 6 hours of classroom instruction and 6 dives (4 practice dives, and 2 experience dives with Trimix with all 6 dives conducted with multiple stage and deco bottles). It is designed to provide a working knowledge of Trimix, including an understanding of the history and practice of decompression, physics, physiology, table analysis, ratio deco (deco on the fly) and other operational considerations. This class is a decompression class, so divers in this depth range must be aware of the potential for entering into decompression commitments and should be prepared.

Online Classroom Courses & Text

1. Online Online Classroom Materials – Trimix Diver
2. Trimix Diver Worksheet
3. Technical DVD is recommended

Academic Topics

1. UTD organization
2. Limits of training, and course completion requirements
3. Advanced Gas Management including Stage and decompression gas concerns
4. Review of decompression, risk, and diving physiology
5. Accelerated, omitted, and “on the fly” decompression calculation
6. Discussion of in-water recompression protocol
7. Dive logistics and Planning

Land Drills & Topics

1. Multi Decompression and stage bottle use
2. Dive team order and protocols
3. Gas switching procedures and protocols
4. Decompression stop management
5. Use of safety spools and reels

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in section 1.5.
2. Review procedures for gas failures, including valve manipulation, air-sharing, and regulator switching (as appropriate).
3. Effectively and comfortably demonstrate the ability to deploy a lift bag/surface marker buoy in less than two minutes while hovering stationary. Participants should not vary in depth more than 3 feet/1 meter.
4. Demonstrate the clean and effective removal and exchange of multiple deco and stage bottles while hovering horizontal. The participant must be capable of removing and replacing each of at least two bottles in less than one minute, i.e. one minute per bottle.
5. Be able to comfortably demonstrate at least two propulsion techniques appropriate for delicate and/or silty environments.
6. Equipment familiarization.
7. Demonstrate excellent buoyancy control skills while conducting stage and decompression gas switches.

Equipment Requirements

1. All equipment noted in paragraph 3.0
2. Two 40 cu.ft. decompression bottles
3. One 80 cu.ft. stage bottle
4. One primary reel per team, with a minimum of 200 feet/60 meters of line

3-320 – Trimix Gold

Removes all depth, gas, and bottle restrictions.

Prerequisites:

1. UTD Trimix Diver (Trimix 1 and 2) (no equivalents)
2. 25 experience dives in Trimix 2 range
3. In-water session(s) to cover
   - 120’/36m gas switching protocols
   - 70'/21m gas switch protocols
   - 20'/6m gas switch protocols
   - Multiple O2 Cycles

Student Skills Demonstration

1. Demonstrate ability to safely deploy a decompression bottle while maintaining buoyancy within a 3'/1m +- of target depth and within 1 minute.
2. Demonstrate ability to safely stow a decompression bottle while maintaining buoyancy within +- 3'/1m of target depth and within 1 minute.
3. Demonstrate ability to pass and receivce a deco bottle while maintaining buoyancy within +- 3'/1m of target depth and within 1 minute.

3-400 Overhead Protocols

Purpose

The UTD Overhead Protocols course is a mandatory prerequisite to UTD's Wreck Diver and Cave Diver (1 and 2) classes, and acts as the first step of any overhead environment certification course. As there are so many skills and techniques common to both wreck and cave diving, the Overhead Protocols class presents the student with the foundational skills that are necessary to be a safe, thinking diver in any overhead environment.

This three-day class takes place in non overhead environment generally at depths of 30'/10m or less, and introduces the student to line-laying, line retrieval, no-visibility line following, touch contact communication and skills, critical skills while no-visibility line following, lost line, lost buddy and lost light. Once these skills are learned, the class introduces a series of simulated failures while on the line: out of air situations, valve failures, etc. These are tested to a level similar to that of Tech 2 skills, but complicated by the necessity of staying on a line and simulating the need to navigate back to open water.

Completion of this class qualifies a diver, within one year, to move on to UTD Wreck Diver or UTD Cave Diver programs, each of which is another three day to five day class that takes place in the actual overhead environment. If a student wishes to complete both Wreck Diver and Cave Diver, he/she will not need to repeat the Overhead Protocols class, eliminating the repetition of the line skills. Both Wreck Diver and Cave Diver contain a complete review of line procedures in case there is a time gap between the Overhead Protocols class and Wreck Diver or Cave Diver.

Note: Overhead Protocols can be combined with Wreck 1 *or* Cave 1 into a single, five-day class.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 18 years
3. Must have a minimum of 75 dives beyond open water qualification
4. UTD Essentials of Overhead Diving or equivalent
5. UTD Rec 2 or equivalent (Nitrox/Advanced)
6. Must be able to swim at least 300 yards/275 meters in less than 12 minutes without stopping.
7. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.

Course Limits

1. General training limits as outlined in Section 1.6
2. Maximum depth 60 feet/18 meters
3. No overhead environments
4. No decompression

Content

The UTD Overhead Protocols course is normally conducted over a 3-day period, and cumulatively involves a minimum of 24 hours of instruction (lecture and in-water) designed to introduce divers to the general skills common to all overhead environments including, but not limited to, wreck penetration and cave exploration.

Course requirements include ten hours of academics and nine (9) dives.

Texts

1. Online Online Classroom Materials – Overhead Diver
2. Gas Planning Worksheet
3. Technical Diver DVD is recommended

Academic Topics

1. UTD organization, limits of training, and course completion requirements
2. Reel and guideline use
3. Dive team order and protocols
4. Touch contact
5. Use of safety spools and reels
6. Basic navigation skills

Land Drills & Topics

1. UTD equipment configuration
2. Reel and guideline use in standard operating procedures
3. Team order and protocols
4. All equipment failures
5. Use of safety spools/reels
6. Reel and guideline use in emergency procedures, including touch contact and air-sharing techniques
7. Lost diver procedures
8. Lost guideline procedures
9. Basic navigation skills
10. Visual referencing skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Pre-dive planning to include:
   - Assess and review diving limitations
   - Dive plan review
   - Equipment review
   - Equipment familiarization
3. Navigation, to include:
   - Visual reference
   - Guideline and Markers use
   - Limited and simulated zero visibility
4. Procedures for gas failures; including valve manipulation, air-sharing, and regulator switching (as appropriate), included but not limited to Zero visibility scenarios
5. Demonstrate proficiency in safe diving techniques, including pre-dive preparations, in-water activity, and post-dive assessment.
6. Air-sharing scenarios to include:
   - Breath hold management
   - Out of air diver
   - Air-sharing of at least 200 feet/60 meters
7. Use of various propulsion techniques according to environment (silt, high flow, delicate)

8. Use of touch contact for limited and simulated zero visibility situations.
9. Use of line following techniques for limited/no visibility experiences.
10. Demonstrate the efficient deployment of a reserve light in less than 30 seconds.
11. Demonstrate excellent buoyancy control skills.
12. Perform a Lost Diver drill while remaining calm and maintaining a horizontal attitude and neutral posture.
13. Perform a Lost Line drill while remaining calm and maintaining a horizontal attitude and neutral posture.
14. Demonstrate effective valve-management by switching regulators, shutting down a valve ,and then returning the valve to the open position.
15. Demonstrate proficiency with guideline management in the following situations:
    - Simulated zero visibility line following; this would incorporate touch-contact skills
    - Efficient deployment of the guideline while following international protocol
    - Efficient removal of the guideline
16. Resolving line entanglement scenarios

3-401 Cave Diver Program

UTD's **Cave Diver** program consists of a two step process - Cave Diver 1 (Cave 1) and Cave Diver 2 (Cave 2). They are designed to be building block classes that introduce a diver to cave environments and the protection and conversion of this delicate aquatic environment. These building blocks are designed to be a slow progression, first (Cave 1) working on the basic cave diving skills needed to penetrate the cave following the "mainline." Later, (Cave 2) we develop the skills to penetrate further into the cave and safely navigate the wide variety of tunnels and passages that make up this complex underwater labyrinth. Upon completion of these two courses, divers are trained and qualified as a **Cave Diver**, with the ability to explore the mainline, unlimited side passages, conducting T's, jumps, gaps, circuits, traverses using gas management rules of 1/3rds and a max depth of 100'/30m. Like other UTD C-Cards the **Cave Diver** certification (Cave 1 AND 2) does not expire, however we do heavily recommend that a certified cave diver complete at least 25 dives every three years to remain current with their skills. The Cave Diver 1 certification is a step to Cave Diver. The Cave 1 certification does expire in 24 months (See Cave Diver 1 Standards and Procedures for more information.)

A certified **Cave Diver** with the relevant experience can then add the prestigious *Cave Diver Gold* rating, allowing them to add a stage bottle to extend their penetration and distance in a cave, as well as progress on to Technical Cave Diver, Scooter Cave diver, Advanced Side-Mount diver and Rebreather Cave diver.

3-410 Cave Diver Part 1 (of **Cave Diver** Program)

Purpose

The UTD Cave Diver 1 course is designed to be the first step in educating and refining the students' skills within the cave environment to both protect the cave and to become a certified **Cave Diver**. This is achieved through an intense diver education program that acquaints individuals with an understanding of established cave conservation procedures and an appreciation for the subtle dangers often associated with this overhead diving. This course covers the basic principles of cave diving, introducing the skills and knowledge required to penetrate and navigate the main line of an underwater cave environment. Training includes an emphasis on awareness, cave dive planning, cave environments, stress management, conservation, standard procedures, emergency procedures, techniques, problem solving, and the hazards of cave diving.

Upon completion Cave Diver 1 divers will be able to safely practice for up to 24 months, penetrating the cave, and following and exploring the mainline with 1/3rd of their gas or a max of usable gas to penetrate (usable gas is total gas minus rock bottom).

Unlike other UTD certification cards the UTD Cave Diver 1 card does expire after 24 months (2 years) from completion of your class unless you continue your experience and education and complete the second part, Cave Diver 2 of the **Cave Diver** program and become a fully certified **Cave Diver** - which has no expiration. To qualify for this type of instruction participants must be proficient divers with advanced buoyancy control skills and foundation in the protocols. UTD does not assume that cave training is for everyone. In fact, only very capable divers, who are quite comfortable in the water, should consider this form of diving.

Note: *Cave 1 and Cave 2 can be combined into a single 5 day program.*

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 21 years
3. Must have a minimum of 75 non-training dives beyond open water qualification
4. Essentials of Overhead Diving or equivalent
5. UTD Overhead Protocols class within 12 months (1 year)
6. UTD Rescue and Emergencies Procedures or equivalent
7. Must be able to swim at least 300 yards/275 meters in less than 12 minutes without stopping
8. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold

Course Limits

1. General training limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 3:1 during any overhead diving activity.
3. Gas consumption: Maximum of 1/3rd of usable gas to penetrate (usable gas is total gas minus rock bottom).
4. Maximum depth 100 feet/30 meters.
5. Minimum 10 feet/ 3 meters of visibility to enter a cave.
6. Minimum 100 cu. ft. /2832 liters of gas to enter a cave.
7. No restrictions (passages in which divers are forced to proceed in single file).
8. No complex navigation such as Jumps, Gaps, T's, cave circuits or traverses.

9. No planned decompression.
10. No scooter or rebreather diving.
11. No original exploration or line/line marker modification.
12. Unlimited navigation decisions allowed in the CAVERN ZONE only.
13. No stage cylinder use allowed.

Course Content

The UTD Cave Diver 1 course is normally conducted over a 3-day period following UTD the Overhead Protocols Class, and involves a minimum of 24 hours of instruction (lecture and in-water) designed to instill divers with an appreciation for the dangers, challenges and beauty of the cave environment. Special emphasis here will be placed on the unique challenges posed by overhead exposure and the identification, management and resolution of life-threatening adversity.

Course requirements include nine (9) hours of academics and eight (8) dives at a minimum of two different locations. At least four (4) of these dives will be beyond the daylight zone.

Texts

1. Online Classroom Materials – Cave Diver
2. Gas Planning Worksheet
3. Cave Diver DVD and Essentials of Overhead Diving DVD recommended

Academic Topics

1. UTD organization, limits of training, and course completion requirements.
2. Conservation.
3. Accident analysis.
4. Reel and guideline use.
5. Dive team order and protocols.
6. Touch contact.
7. Use of safety spools and reels

Land Drills & Topics

1. UTD equipment configuration.
2. Reel and guideline use in standard operating procedures.
3. Team order, positioning and protocols.
4. All equipment failures.
5. Use of safety spools/reels.
6. Reel and guideline use in emergency procedures, including touch contact and gas-sharing techniques.
7. Lost diver procedures.
8. Lost guideline procedures.
9. Line entanglement procedures (including cutting and repairing guideline)
10. Visual referencing skills.

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Pre-dive planning to include:
   - Assess and review diving limitations,
   - Dive plan review,
   - Equipment review,
   - Equipment familiarization,
   - Map use.
3. Navigation, to include:
   - Visual reference,
   - Guideline and marker use,
   - Limited and simulated zero visibility.
4. Procedures for gas failures; including valve manipulation, gas-sharing, and regulator switching (as appropriate), included but not limited to zero visibility scenarios.
5. Demonstrate proficiency in safe diving techniques, including pre-dive preparations, in-water activity, and post-dive assessment.
6. Gas-sharing scenarios to include:
   - Breath hold management,
   - Out of gas diver,
   - Gas-sharing of at least 200 feet/60 meters,
   - .
7. Use of various propulsion techniques according to environment (silt, high flow, delicate).
8. Use of touch contact for limited and simulated zero visibility situations.
9. Use of line following techniques for limited/no visibility experiences.
10. Demonstrate the efficient deployment of a reserve light in less than 30 seconds.
11. Demonstrate excellent buoyancy control skills.
12. Perform a Lost Diver drill while remaining calm, horizontal and neutrally buoyant.
13. Perform a Lost Line drill while remaining calm, horizontal and neutrally buoyant.
14. Demonstrate effective valve-management by switching regulators, shutting down a valve in less than 15 seconds, and then returning the valve to the open position again in less than 15 seconds.
15. Demonstrate proficiency with guideline management in the following situations:
   - Simulated zero visibility line following; this would incorporate touch-contact skills,
   - Efficient deployment of the guideline while following international protocol,
   - Efficient removal of the guideline.
16. Resolving line entanglement scenarios.
17. Unconscious diver recovery simulation, including horizontal swim recovery over a minimum distance of 100 feet/ 30 m in the open water.

Equipment Requirements

1. All equipment noted in paragraph 3.0.
2. One safety spool per diver, with a minimum of 150 feet/50 meters of line, knotted each 30'/10m.
3. One primary reel per team, with a minimum of 400 feet/120 meters of line.
4. Personal markers (at least 5 directional and 5 non-directional).
5. Two thigh-mounted pockets.
6. Neoprene hood.
7. Fins with spring-straps.

3-412 Cave Diver Part 2 (of **Cave Diver** Program)

Purpose

The UTD Cave Diver 2 class is the continuation of the pursuit to become a fully certified **Cave Diver**. The course is designed to be the second step in educating and refining skills within the cave environment to protect the cave. This is achieved through an intense diver education program that acquaints individuals with an understanding of established cave conservation procedures and an appreciation for the subtle dangers often associated with this overhead diving. This course covers more advanced principles of cave diving, continuing with the skills and knowledge required to penetrate and navigate the underwater cave environment. Training includes an emphasis on awareness, cave dive planning, cave environments, stress management, navigation, T's, Jumps, Gaps, conservation, standard procedures, emergency procedures, techniques, problem solving, and the hazards of cave diving. Upon completion of Cave Diver 2 class, divers will now be considered to be a fully qualified **Cave Diver**, their certification will no longer expire, and they will be able to safely penetrate and navigate the cave, not only following and exploring the mainline but many of the side passageways and tunnels that make up this underwater labyrinth, while using no more than 1/3rd of their gas for penetration. UTD does not assume that cave training is for everyone. In fact, only very capable divers, who are quite comfortable in the water, should consider this form of diving.

Note: *The entire Cave Diver training curriculum (parts 1 and 2) can be combined into a single 5/6 day program.*

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 18 years
3. Must have a minimum of 75 non-training dives beyond open water qualification
4. Essentials of Overhead Diving or equivalent.
5. UTD Cave Diver 1 or equivalent within 24 months
6. UTD Rescue and Emergencies Procedures or equivalent
7. Must be able to swim at least 300 yards/275 meters in less than 12 minutes without stopping
8. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold

Course Limits

1. General training limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 3:1 during any overhead diving activity
3. Gas consumption: no more than 1/3 of usable gas volume for cave penetration. Minimum reserve exit is 2/3rds of usable gas volume. Rock bottom is to be deducted from starting volume to get usable volume.
4. Maximum depth 100'/30, or 130'/39m if previously qualified to the UTD Technical Diver 1 Level or equivalent.
5. Minimum 10 feet/ 3 meters of visibility to enter a cave
6. Minimum 100 cu. ft. /2832 liters of gas to enter a cave
7. No passages in which divers are forced to take off and/or manipulate their equipment
8. Unlimited navigation decisions
9. No planned decompression
10. No scooter or rebreather diving
11. No exploration or line/line marker modification
12. No stage cylinder use allowed

Course Content and Duration

The UTD Cave Diver 2 course is normally conducted over a 3-day period, and involves a minimum of 24 hours of instruction (lecture and in-water) designed to instill divers with an appreciation for the dangers, challenges and beauty of the cave environment. Special emphasis here will be placed on the unique challenges posed by overhead exposure and the identification, management and resolution of life-threatening adversity.

Course requirements include nine (9) hours of academics and eight (8) dives at a minimum of two different locations.

Texts

1. Online Classroom Materials – Cave Diver
2. Gas Planning Worksheet
3. Cave Diver DVD and Essentials of Overhead Diving DVD recommended

Academic Topics

1. UTD organization, limits of training, and course completion requirements.
2. Conservation.
3. Accident analysis.
4. Reel and guideline use.
5. Dive team order and protocols.
6. Touch contact.
7. Use of safety spools and reels.
8. Complex navigation skills T's, Jumps, Gaps.
9. Use of maps.

Land Drills & Topics

1. UTD equipment configuration
2. Reel and guideline use in standard operating procedures.
3. Team order, positioning and protocols.
4. All equipment failures
5. Use of safety spools/reels.
6. Reel and guideline use in emergency procedures, including touch contact and gas-sharing techniques.
7. Lost diver procedures.
8. Lost guideline procedures.
9. Navigation skills and line marking protocols.
10. Visual referencing skills.
11. Line entanglement procedures (including cutting and repairing guideline).

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Pre-dive planning to include:
    - Assess and review diving limitations
    - Dive plan review

- Equipment review
- Equipment familiarization
- Map use

3. Navigation, to include:
   - Visual reference
   - Guideline and marker use
   - Limited and simulated zero visibility
   - Gaps, Jumps and T's
4. Procedures for gas failures; including valve manipulation, air-sharing, and regulator switching (as appropriate), included but not limited to zero visibility scenarios
5. Demonstrate proficiency in safe diving techniques, including pre-dive preparations, in-water activity, and post-dive assessment.
6. Gas-sharing scenarios to include:
   - Breath hold management
   - Out of gas diver
   - Gas-sharing of at least 200 feet/60 meters
   - Through a restriction in single file
7. Use of various propulsion techniques according to environment (silt, high flow, delicate)
8. Use of touch contact for limited and simulated zero visibility situations.
9. Use of line following techniques for limited/no visibility experiences.
10. Demonstrate the efficient deployment of a reserve light in less than 30 seconds.
11. Demonstrate excellent buoyancy control skills.
12. Perform a Lost Diver drill while remaining calm , horizontal and neutrally buoyant.
13. Perform a Lost Line drill while remaining calm, horizontal and neutrally buoyant.
14. Demonstrate effective valve-management by switching regulators, shutting down a valve in less than 15 seconds, and then returning the valve to the open position again in less than 15 seconds.
15. Demonstrate proficiency with guideline management in the following situations:
    - Simulated zero visibility line following; this would incorporate touch-contact skills
    - Efficient deployment of the guideline while following international protocol
    - Efficient removal of the guideline
16. Resolving line entanglement scenarios
17. Demonstrate proficiency with navigational procedures and protocols to include at least 4 navigational decisions (T's and Jumps, with a minimum of one each).
18. Unconscious diver recovery simulation, including horizontal swim recovery over a minimum distance of 100 feet/ 30 m in the open water.

Equipment Requirements

1. All equipment noted in paragraph 3.0
2. One safety spool per diver, with a minimum of 150 feet/50 meters of line, knotted each 30'/10m.
3. Three jump/gap spools per team, each with a minimum of 100 feet/ 30 meters of line.
4. One primary reel per team, with a minimum of 400 feet/120 meters of line.
5. Personal markers (at least 10 directional and 10 non-directional).

3-420 – Cave Diver Gold (Stage Cave Diver Endorsement)

Purpose

Allows the use of up to two (2) stage bottles during cave dives at or above max training depth of 100'/30m. This is specifically to allow certified Cave Divers to extend bottom time.

Prerequisites:

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. UTD Cave Diver (Cave 1 and Cave 2).
3. Must have completed a minimum of 25 non-training cave dives after Cave Diver 2.
4. Must be able to swim at least 300 yards/275 meters in less than 12 minutes without stopping.
5. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.

Course Limits

1. General training limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 3:1 during any overhead diving activity.
3. Gas consumption: no more than 1/3 of usable volume is used for double tank cave penetration, 1/4 of usable volume of the double tank is used when single stage tank and 1/6 of usable volume of the double tank is used when double stage tank is used for cave penetration. Stages to be breathed to “1/2 plus 200 psi/15 bar”. Rock bottom is to be deducted from starting volume to get usable volume.
4. Maximum depth 100 feet/30 meters.
5. Minimum 10 feet/ 3 meters of visibility to enter a cave.
6. Minimum 100 cu. ft. /2832 liters of gas to enter a cave.
7. No cave circuits or traverses.
8. No planned decompression.
9. No scooter or rebreather diving.
10. No exploration or line/line marker modification.

Course Content and Duration

UTD Cave Diver Gold training is normally conducted over a 3-day period, and involves a minimum of 24 hours of instruction (lecture and in-water). It is designed to introduce certified cave divers to the proper use of stage bottles in the cave environment. Special emphasis here will be placed on the unique challenges posed by extended overhead exposure and cave conservation protocols.

Course requirements include nine (9) hours of academics and land drills, and six (6) cave dives at a minimum of two different locations.

Texts

1. Online Classroom Materials – Stage Cave Diver
2. Gas Planning Worksheet
3. Cave Diver and Essentials of Overhead Diving DVDs (recommended)

Academic Topics

1. UTD organization, limits of training, and course completion requirements.
2. Cave conservation.
3. Gas management and lost stage gas protocols.
4. Dive team order and protocols.
5. Touch contact.
6. Use of safety spools and reels.
7. Navigation skills.

Land Drills & Topics

1. UTD stage bottle configuration and rigging.
2. Stage bottle drop and retrieval procedures, to include retrieval in zero visibility.
3. OOG procedures while using stage bottles, including in zero visibility.
4. Team gas matching and management.
5. Reel and guideline use in emergency procedures, including touch contact and gas-sharing techniques while wearing stage bottles.
6. Navigation skills and line marking protocols.
7. Visual referencing skills.

Student Skills Demonstration

1. Demonstrate ability to safely deploy and stow a stage bottle while maintaining buoyancy within + or - 3'/1m of target depth and within 1 minute.
2. Demonstrate ability to properly drop and retrieve (including retrieval in simulated zero visibility) a stage bottle with minimum impact on the cave environment.
3. Demonstrate ability to pass and receive a stage bottle while maintaining buoyancy within + or - 3'/1m of target depth and within 1 minute.
4. OOG procedures while using stage bottles, including in zero visibility.

3-430 Technical Cave Diver

Purpose

UTD Technical Cave Diver training develops cave diving proficiency. This very demanding cave training seeks to refine the cave diving techniques of certified **Cave Divers** who have mastered the requirements of UTD Technical Diver (Tech 1 and 2). To succeed, students must be practiced in the fundamental aspects of cave diving and comfortable in the use of stage bottles and single deco gas for decompression.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 21 years of age.
3. UTD Cave Diver with a minimum of 25 non-training dives at the UTD Cave 2 level or above.
4. UTD Technical Diver (Tech 1 and 2) or equivalent, with a minimum of 25 non-training technical decompression dives. Divers who were not previously trained by UTD must first secure the approval of the UTD instructor before entering this class, and must be prepared to engage in supplemental training to remedy any training deficiencies. Additional time and fees are at the discretion of the instructor.
5. Must have proof of at least 200 logged non-training dives, with at least 60 non-training dives in double tank/cylinder configuration.
6. Must be able to swim at least 400 yards/365 meters in less than 14 minutes without stopping.
7. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 3:1 during any overhead diving activity.
3. Gas consumption: 1/3rd for penetration and a minimum of 2/3 of gas supply for cave exit or enough to conduct a swimming exit on open circuit, depending on team size, equipment redundancy and cave conditions.
4. No critical skills training dives are to exceed a depth of 100 feet / 30 meters.
5. Maximum depth 160 feet / 48 meters
6. Minimum 10 feet/3 meters of visibility to enter a cave.
7. Minimum 100 cu.ft./2832 liters of gas to enter a cave.
8. All dives will be with stage and/or deco bottles.
9. No scooter or rebreather diving unless certified Scooter Cave Diver or Cave Rebreather Diver.
10. No goal-oriented dives.

Course Content

Training requirements include a minimum of eight (8) cave dives at a minimum of three different diving locations. Special emphasis here will be placed on the demands of extended overhead penetration, advanced navigation techniques (including traverses, circuits and siphons) advanced gas management, restrictive passage negotiation procedures, precision propulsion techniques, decompression risk, management and protocol, and extensive stage bottle management.

UTD Technical Cave Diver training is normally conducted over a 5-day period, and involves a minimum of 40 hours of instruction (lectures and in-water) designed to extend the divers' overhead skills and appreciation for the dangers, challenges and beauty of the cave environment.

Online Classroom Courses and Text

1. Online Classroom Materials – Technical Cave Diver
2. Technical Gas Planning Worksheet
3. Technical Diver and Cave Diver DVDs are recommended

Academic Topics

4. Reel and guideline use.
5. Dive team order and protocols.
6. Touch contact.
7. Stage and deco bottle procedures in the overhead environment.
8. Complex navigation skills, including circuits and traverses.
9. Mixed team (rebreather & OC) diving in cave environments.

Land Drills and Topics

1. Reel and guideline use in standard operating procedures.
2. Team order and protocols.
3. Reel and guideline use in emergency procedures, including touch contact and air-sharing techniques, including zero visibility.
4. Advanced navigation skills, including circuits and traverses.
5. Visual referencing skills.
6. Stage and deco bottle configuration and procedures.

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Pre-dive planning to include:
   - Assess and review diving team limitations,
   - Dive plan review,
   - Equipment review,
   - Equipment familiarization,
   - Map use, demonstrating ability for basic map reading.
3. Navigation, to include:
   - Visual reference,
   - Guideline use,
   - Limited and simulated zero visibility.
4. Procedures for gas failures; including valve manipulation, gas-sharing, and regulator switching (as appropriate).
5. Demonstrate adequate mask switching.
6. Use of various propulsion techniques according to conditions.
7. Use of touch contact for limited and simulated zero visibility situations.
8. Use of line following techniques for limited/no visibility situations.
9. Demonstrate the effective deployment of a reserve light in less than 30 seconds.
10. Demonstrate excellent buoyancy control skills.
11. Perform a Lost Diver drill while remaining calm, horizontal and neutrally buoyant.

12. Perform a Lost Line drill while remaining calm, horizontal and neutrally buoyant in simulated zero visibility conditions.
13. Demonstrate effective valve-management by switching regulators, shutting down a valve in less than 10 seconds and returning the valve to the open position again in less than 10 seconds.
14. Demonstrate proficiency with guideline management in the following situation:
    - Simulated zero visibility line following; this would incorporate touch-contact skills,
    - Efficient deployment and retrieval of the guideline.
15. Problem resolution, including line entanglement, navigation in restrictive areas, and multiple line management.
16. Demonstrate advanced navigational technique by successfully planning at least 2 circuits and/or traverses.
17. Demonstrate adequate procedures to enter and exit a restriction.
18. Demonstrate a calm demeanor while sharing gas in a cave exit for at least 900 feet/300 meters.
19. Demonstrate a calm demeanor while sharing gas through a restriction, minimizing ceiling impact.
20. Demonstrate a calm demeanor while sharing gas in simulated zero visibility for at least 600 feet/200 meters.
21. Demonstrate an understanding of the use of stage cylinders for the purpose of extending penetration and deco bottle to accelerate and enhance decompression.
22. Drop stage and decompression cylinders with minimum cave impact and without changing buoyancy 3 feet/1 meter specifically to avoid any visibility reduction.
23. Retrieve stage and decompression bottles and switch bottles in simulated zero visibility
24. Demonstrate stage bottle gas sharing scenarios within the team.
25. Demonstrate the proper use of stage bottles in restrictions.
26. Rescue and emergency procedures.

Equipment Requirements

1. All equipment noted in paragraph 3.0.
2. Three jump/gap spools per diver, each with a minimum of 100 feet/30 meters of line.
3. One safety spool per diver with a minimum of 150 feet/50 meters of line, knotted each 30 feet/10 meters.
4. One primary reel per team, with a minimum of 400 feet/120 meters of line.
5. At least twenty line markers, of which at least ten should be directional (line arrows) and ten non-directional.
6. 2 stage bottles.
7. 1 Oxygen bottle.
8. 3 stage regulators.
9. Tank leash.
10. Drysuit.
11. Electric dry suit heating recommended.

3-440 Rebreather Cave Diver

Purpose

The UTD Rebreather Cave Diver course is designed for Certified Cave Divers who are also certified on a rebreather (PSCR or mCCR) in the open water, training them to combine their skills to become certified and proficient in rebreather cave diving. This course seeks to both refine and develop divers who want to use their rebreather while conducting a cave dive to their current certification level. To succeed in this course, students must be practiced in the fundamental aspects of cave diving and comfortable in the use of rebreather diving.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Minimum age of 21
3. UTD mCCR 1 or PSCR 1 and UTD Cave Diver or equivalent. Divers who were not previously trained by UTD must first secure the approval of the UTD instructor before entering this class, and must be prepared to engage in supplemental training to remedy any training deficiencies. Additional time and fees are at the discretion of the instructor.
4. Must have proof of at least 200 logged non-training dives, with at least sixty (60) non-training dives in a rebreather (non overhead) and at least twenty (25) non-training open-circuit cave dives
5. Standard gases are used. Nitrox and/or Helium certification required if breathing any gas with higher O2 content than 22% and/or using a helium based mix.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 3:1 during any overhead diving activity.
3. Gas consumption: maximum rebreather use of 1/3 of gas supply,and enough reserve to exit while breathing Open Circuit bailout.
4. No dives are to exceed the depth or penetration distance of a current certification level.
5. Minimum 20 feet/6 meters of visibility to enter a cave.
6. Minimum 130 cu.ft./3680 liters of gas to enter a cave.
7. Minimum one O2 deco gas.
8. No scooter diving.
9. No goal-oriented dives.

Course Content and Duration

The Rebreather Cave Diver course builds upon previously learned skills, focusing on extending cave and rebreather diving techniques. These skills include: a focus on environmental awareness, advanced gas management, problem resolution, stress management, self evaluation, advanced navigation, basic survey techniques, extended exposure strategy, and cave decompression management while using a rebreather and a single gas deco (oxygen). This course is heavily experience-based, and includes many practical, task-oriented skills that must be mastered before a student is competent to safely dive at this level.
The UTD Rebreather Cave Diver course is normally conducted over a 5-day period, and cumulatively involves a minimum of 40 hours of instruction (lecture and in-water) designed to instill divers with an appreciation for the dangers, challenges of rebreather in a cave environment.

Course requirements include a minimum of twelve (12) rebreather cave dives.

Texts

1. Online Classroom Materials – UTD Rebreather Cave Diver.
2. Gas Planning Worksheet.
3. Technical Diver and Essentials of Rebreather Diver DVDs are recommended.

Academic Topics

1. Reel and guideline use.
2. Dive team order and protocols.
3. Touch contact.
4. Advanced navigation skills.
5. Rebreather use in a cave.
6. Gas management techniques, including for mixed teams.

Land Drills & Topics

1. Reel and guideline use in standard operating procedures.
2. Team order and protocols.
3. Rebreather, reel and guideline use in emergency procedures, including touch contact and air-sharing techniques, including zero visibility.
4. Advanced navigation skills.
5. Visual referencing skills.
6. Deco bottle configuration and procedures.
7. Rebreather techniques.

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Pre-dive planning to include:
   - Assess and review diving team limitations,
   - Dive plan review,
   - Equipment review,
   - Equipment familiarization,
   - Map use.
3. Procedures for gas failures; including valve manipulation, air-sharing, and regulator switching (as appropriate).
4. Gas-sharing scenarios to include:
   - Breath hold management,
   - Out of gas diver,
   - Gas-sharing of at least 300 feet/90 meters,
   - Comfortably swim at least 200 feet/60 meters without a mask while gas-sharing.
5. Demonstrate adequate mask switching.
6. Use of various propulsion techniques according to conditions.
7. Use of touch contact for limited and simulated zero visibility situations.
8. Use of line following techniques for limited/no visibility situations.
9. Demonstrate the effective deployment of a reserve light in less than 30 seconds.
10. Demonstrate excellent buoyancy control skills while maintaining PPO2's.
11. Demonstrate effective valve-management by switching regulators, shutting down a valve in less than 10 seconds and returning the valve to the open position again in less than 10 seconds.
12. Demonstrate proficiency with guideline management in the following situation:

- Simulated zero visibility line following, incorporating touch-contact skills,
- Efficient deployment and removal of the guideline.

13. Problem resolution, including line entanglement, navigation in restrictive areas, and multiple line management.
14. Demonstrate advanced use of Rebreather in cave environment including critical failures.
15. Demonstrate a calm demeanor while sharing air in a cave exit for at least 600 feet/200 meters.
16. Demonstrate a calm demeanor while sharing air through a restriction, minimizing ceiling impact.
17. Demonstrate a calm demeanor while sharing air in simulated zero visibility for at least 200 feet/60 meters.
18. Rescue and emergency procedures.
20. Perform the following Rebreather test:
    - O2 drop - Time calculation,
    - Volume drop - Time Calculation,
    - PPO2 cycle - Diluent addition only,
    - pSCR emergency exit mode.
21. Demonstrate proficiency with rebreather use and failures in cave environments.
    - Unit flooding recovery,
    - Hyperoxic mix problem solving,
    - Hypoxic mix problem solving,
    - Demonstrate ability for Cave RB bailout exit with RB O2 bottle failure (mCCR),
    - Demonstrate ability for Cave RB bailout exit with main bottom gas supply failure,
    - Demonstrate ability for Cave OC bailout exit with catastrophic Rebreather failure,
    - Demonstrate mix team (RB and OC) dive planning.

Equipment Requirements

1. All equipment noted in paragraph 3.0.
2. Rebreather in UTD MX mCCR or PSCR configuration.
3. Rebreather backgas/diluent cylinders should be large enough volume to facilitate using diluent from the backgas for the penetration and reserving enough volume to exit the cave swimming on open circuit backgas. Suggested minimum sizes are AL80s/85s/11L/12Ls or 120 cu.ft./18L..
4. Three spools / reels, each with a minimum of 100’/30m of line per diver. One spool line must be knotted each 30’/10m.
5. One primary reel per team, with a minimum of 200 feet/60 meters of line. Line must be knotted each 10’/3m.
6. At least six line markers, of which at least 3 should be directional (line arrows) and 3 non-directional.
7. 1 Oxygen 6m bottle, (AL40, 7L).

3-450 Scooter Cave Diver

Purpose

UTD Scooter Cave Diver training develops cave diving proficiency with the addition of a DPV/ Scooter. This training seeks to refine the cave scooter diving techniques for certified Cave Divers who are also open water certified DPV/Scooter divers. To succeed, students must be experienced in the essential aspects of cave diving and comfortable in the use of a DPV/scooter in open water environments.

UTD Scooter Cave Diver training builds upon previously learned skills, focusing on extending essential cave diving techniques. These skills include: a focus on environmental awareness, dive buddy and team awareness, problem resolution, stress management, self evaluation, advanced complex navigation, basic survey techniques, and basic gas and failure management while using a DPV/scooter in a cave. Training includes many practical, task-oriented skills that must be mastered before a student is competent to safely dive at this level.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 21 years of age.
3. UTD Cave Diver with a minimum of 25 non-training dives at the UTD Cave 2 level or above.
4. UTD Scooter 1 diver or equivalent, with a minimum of 50 non-training dpv/scooter dives.
5. Must have proof of a total of at least 200 logged dives.
6. Must be able to swim at least 400 yards/365 meters in less than 14 minutes without stopping.
7. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.
8. Scooter Cave Diver training can be combined with Cave Diver Gold training at the discretion of the Instructor.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 3:1 during any overhead diving activity.
3. Open circuit gas consumption: must reserve enough gas supply for a swimming cave exit.
4. Max Depth - 100 feet / 30 meters.
5. Standard gases are Nitrox (unless Technical Cave Diver).
6. All dives shall be with a DPV/scooter.
7. Maximum scooter penetration shall enable a swimming exit on back gas in the event of mechanical failure.
8. Minimum 10 feet/3 meters of visibility to enter a cave.
9. Minimum 100 cu.ft./2832 liters of gas to enter a cave.
10. No planned decompression (unless Technical Cave Diver).
11. No goal-oriented dives.

Course Content

This training amplifies the skills introduced in your Scooter level 1 class and extends the learning to ensure you understand each critical aspect of the scooter. The “dry run” sessions are designed to introduce all the mastery and critical skills covered in this training – running and

retrieve guidelines (reels and spools), stage bottle drop and retrieval, working with multiple scooters and learning to turn, stop, start and deal with the scooter in tighter environments. You will also learn and practice important skills such as towing multiple scooters and other scooter divers. You will learn to do critical skills with the scooter – OOG's, failed scooters, runaway scooters and multiple failure scenarios while ensuring you can complete your decompression or return to your starting point.

UTD Scooter Cave Diver training is normally conducted over a 5-day period, and involves a minimum of 40 hours of instruction (lecture and in-water) designed to instill divers with an appreciation for the dangers, challenges, and beauty of the cave environment while diving a DPV/scooter. Training requirements include a minimum of twelve cave dives at a minimum of three different diving locations. If also seeking Cave Diver Gold training, the student should expect combined training to be cumulatively 7 or 8 days.

Online Classroom Courses and Text

1. Online Classroom Materials – Scooter Cave Diver.
2. Scooter Gas Planning Worksheet.
3. Scooter Diver and Cave Diver DVDs are recommended.

Academic Topics

1. Personal and team positioning.
2. Learning to use guidelines and spools while scootering.
3. Stage bottle use during scootering.
4. Gas sharing scenarios within the scooter/DPV team.
5. Buoyancy and trim of Diver Vehicle (+/-).
6. Streamlining.
7. Towing equipment & multiple scooters/DPVs.
8. Propeller entanglements.
9. Dive planning:
    - Gas management,
    - Time,
    - Distance.
9. Emergency planning, including for mixed teams.
10. Touch contact.

Land Drills & Topics

1. Reel and guideline use in standard operating procedures.
2. Team positioning, order and protocols.
3. Use of safety spools/reels and personal markers.
4. Reel and guideline use in emergency procedures, including touch contact and gas-sharing techniques, including zero visibility.
5. Advanced navigation skills including circuits and traverses.
6. Visual referencing skills.
7. Loss of gas.
10. Loss of vehicle.
11. Loss of team mate.
12. Loss of control.
13. Stage bottle use.

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5.
2. Pre-dive planning to include:
3. Assess and review diving team limitations,
4. Dive plan review, including gas planning in the event of mechanical failure,
5. Equipment review,
6. Equipment familiarization,
7. Map use.
8. Navigation, to include:
9. Visual reference,
10. Guideline and personal marker use while using a scooter,
11. Limited and simulated zero visibility.
12. Use of touch contact for limited and simulated zero visibility situations.
13. Use of line following techniques for limited/no visibility situations.
14. Demonstrate the effective deployment of a reserve light in less than 30 seconds.
15. Demonstrate excellent buoyancy control skills.
16. Demonstrate proficiency with guideline management in the following situation:
17. Simulated zero visibility line following (touch-contact skills),
18. Efficient deployment and retrieval of a 400 feet/120 meter guideline,
19. Demonstrating the dropping and retrieval of a stage bottle with minimum cave impact.
20. Swimming with a dead scooter/DPV.
21. Being towed by another scooter/DPV diver.
22. Being towed by another scooter/DPV diver while towing your dead scooter/DPV.
23. Gas matching & planning for a scooter/DPV team.
24. Gas sharing while towing.
25. Emergency out of gas management, including a direct ascent to the surface.
26. Demonstrate adequate procedures to enter and exit a restriction with a scooter/DPV.
27. Demonstrate a calm demeanor while sharing gas in a scooter/DPV cave exit for at least 900 feet/300 meters.
28. Demonstrate a calm demeanor while sharing gas through a restriction, minimizing ceiling impact.
29. Demonstrate a calm demeanor while sharing gas in simulated zero visibility for 200'/60m
30. Demonstrate an understanding of the use of scooters for the purpose of accelerating cave penetration.
31. Drop and retrieve a scooter/DPV with minimum cave impact and without changing buoyancy 3 feet/1 meter specifically to avoid any visibility reduction.
32. Retrieve a scooter/DPV in simulated zero visibility..
33. Demonstrate the proper use of a scooter/DPV at restrictions.

Equipment Requirements

1. All equipment noted in paragraph 3.0.
2. Three spools, each with a minimum of 100 feet/30 meters of line, per diver. One spool line must be knotted each 30'/10m.
3. One primary reel per team, with a minimum of 400 feet/120 meters of line.
4. At least ten line markers, of which at least five should be directional (line arrows) and five non-directional.
5. Tow-behind style scooter (X-Scooter, Silent Submersion, Tekna, Mako Oceanic, Hollis).
6. Tow harness recommended.

3-460 Advanced Side Mount Cave Diver

Purpose

UTD Advanced Side Mount Cave Diver training develops cave diving proficiency in this specific configuration. This very demanding open circuit training seeks to refine the cave diving techniques of certified Cave Divers who have both mastered the requirements of UTD Essentials of Cave Side Mount diving and gained the necessary experience in side mount configuration at their level of certification. To succeed, students must be practiced in the basic aspects of cave diving and comfortable in diving the side mount configuration at their level.

The Advanced Side Mount Cave Diver course builds upon previously learned skills, focusing on extending essential cave diving techniques. These skills include: a focus on environmental awareness, dive buddy and team awareness, problem resolution, stress management, self evaluation, navigation, basic survey techniques, extended exposure strategy, while using multiple stage bottles. This training is heavily experience- and stage bottle-based, and includes many practical, task-oriented skills that must be mastered before a student is competent to safely dive at this level.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Minimum age of 18.
3. Completed UTD registration process.
4. UTD Cave Diver (or equivalent) and Essentials of Cave Side Mount.
5. Must have completed twenty five (25) experience cave dives in Side Mount configuration at current level of certification.
6. Standard gases are used. Nitrox and/or Helium certification required if breathing any gas with higher O2 content than 22% and/or using a helium based mix.

Course Content

Training is usually over a 5-day period and requires a minimum of ten (10) hours of academics / dry runs and at least ten (10) in-water dives. These must be a combination of demonstration/ critical skills and experience dives. Additional training and dives are at the discretion of the instructor and are based on the level of training the student is seeking.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 3:1 during any overhead diving activity.
3. Open circuit gas consumption: minimum of 2/3 of gas supply for cave exit (normal stage limits apply, where applicable).
4. No critical skills training dives are to exceed a depth of 100 feet / 30 meters.
5. Max Depth - according to students' current certification level.
6. Minimum 10 feet/3 meters of visibility to enter a cave.
7. Minimum 100 cu. ft./2832 liters of gas to enter a cave.
8. UTD Z-System or similar Side Mount configuration.
9. No goal-oriented dives.

Online Classroom Courses & Text

1. Online Classroom Materials - Advanced Side Mount Cave Diver.
2. Cave Side Mount Worksheet.
3. Cave Diver and Essentials of Side Mount DVDs (recommended).

Academic Topics

1. UTD organization.
2. Side Mount diving principles.
3. Side Mount theory as it applies to cave diving.
4. Dive planning and gas management, including stage bottles.
5. Negotiating restrictive areas.
6. Air sharing and valve procedures.

Land Drills & Topics

1. Dive team protocols.
2. Configuration of the Z-System or equivalent for cave Side Mount diving.
3. Gas sharing drills.
4. Configuration of multi-cylinder Side Mount system.
5. Multiple cylinder gas management.
6. Simulated failures of the stage bottles.
7. Simulated failures of the distribution block.
8. Simulated failure of the drive hose connection.
9. Zero visibility communication.

Required Dive Skills and Drills

1. All skills and drills as outlined in the general diving skills as outline in Section 1.5.
2. All skills requirements of requested crossover level as outlined by UTD Class structure.
3. Emergency out of gas management.
4. Multiple cylinder gas management.
5. Unclipped drive hose failure.
6. Distribution block failure.
7. Gas switch failures.
8. Demonstrate an understanding of the use of stage cylinders for the purpose of extending penetration and deco bottle to accelerate and enhance decompression.
9. Drop and retrieve stage and decompression cylinders with minimum cave impact and without changing buoyancy 3 feet/1 meter specifically to avoid any visibility reduction.
10. Retrieve stage and decompression bottles and switch bottles in simulated zero visibility.
11. Demonstrate stage bottle gas sharing scenarios within the team.
12. Demonstrate the proper use of stage bottles in restrictions.
13. Demonstrate adequate procedures to enter and exit a restriction, including “no-mount” restrictions.
14. Demonstrate a calm demeanor while sharing gas in a cave exit for at least 900 feet/300 meters.
15. Demonstrate a calm demeanor while sharing gas through a restriction, minimizing ceiling impact.
16. Demonstrate a calm demeanor while sharing gas in simulated zero visibility for at least 600 feet/200 meters.

Required Equipment:

1. All equipment noted in paragraph 3.0.
2. UTD Z-System side mount configuration or equivalent for Side Mount diving.
3. Appropriate multiple AL80 stage bottles with appropriate Side Mount rigging.

3-470 Expedition Cave Diver

Purpose

UTD Expedition Cave Diver training is the culmination of a comprehensive variety of UTD cave instruction designed to establish cave diving excellence and facilitate deep, mixed gas, side mount, rebreather, and exploration diving in the cave environment. This training is a mastery level course developed specifically for adept cave divers who are seeking to use these skills in aggressive, yet safe, scooter, side mount and rebreather exploration-oriented cave diving. Further, emphasis here is placed on advanced and maximum decompression theory, gas mixture and management, the control of extreme exposures to oxygen, long penetrations utilizing DPV/Scooters and aggressive and/or deep rebreather cave penetrations and/or cave exploration diving.

Participants must be experienced rebreather and cave divers who are dedicated to mastering the art of cave diving. Participants must be physically fit, emotionally stable and highly motivated. This level of training is essential for anyone considering extreme rebreather cave diving exploration. The UTD Expedition Cave Diver is a role model and is strongly encouraged to mentor up and coming cave divers.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum 21 years of age.
3. Must be a certified UTD Scooter Cave Diver, UTD Rebreather Cave Diver, UTD Technical Cave Diver, UTD Advanced Side Mount Cave Diver and UTD Trimix Diver
4. Must have proof of at least 750 logged dives, with at least 300 dives in a double tank/cylinder DIR configuration; 200 of these must be cave dives in multiple destinations, and 100 of these must be with stages and/or deco bottles, 100 in Side Mount configuration 100 with DPV/scooter, and 200 Rebreather dives.
5. Must be able to swim at least 400 yards/365 meters, in less than 12 minutes without stopping.
6. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 2:1 during any overhead diving activity.
3. Gas consumption: Rebreather gas use must leave a minimum supply for OOG O/C cave exit from furthest penetration.
4. No training dives are to exceed an equivalent narcotic depth of 100 feet/30 meters.
5. Two Trimix RB dives must be between 200 feet/60 meters and 250 feet/75 meters.
6. Two dives in which the total deco time per dive is at least 1 hour.
7. No decompression time or depth limitations.

Course Content and Duration

UTD Expedition Cave Diver training is structured around two separate periods.
One training period is skill based with a minimum 5-day period consisting of at least five rebreather dives, at least 4 of which must be using multiple scooters and stages, four of which must be Trimix dives beyond 160 feet/48 meters with decompression.

The second period is oriented towards providing divers with practical, exploration-grade rebreather cave experience. This is accomplished by engaging them in dives with a UTD instructor and within a UTD (or affiliated organization) diving project. UTD representatives may structure this time in many different formats and are encouraged to increase the stated minimums.

Texts

1. UTD Online Classroom Materials – Expedition Cave Diver.
2. Gas Planning Worksheet.
3. Cave Diver, Technical, Scooter and Essentials of Rebreather DVDs (recommended).

Academic Topics

Lecture topics will focus on the preparation and execution of extended range exploration, including methods for managing the eventualities associated with long-term immersion.

1. Multiple scooter procedures.
2. Long range rebreather cave diving planning.
3. Maximum cave decompression strategy.
4. Habitat and electric heating.
5. In-water recompression.
6. Project basics.
7. Team building.
8. Exploration techniques.

Land Drills and Topics

1. Use of safety spools/reels.
2. Reel and guideline use in emergency procedures including touch contact and air-sharing techniques.
3. Lost diver procedures.
4. Lost guideline procedures.
5. Advanced navigation skills including gaps and jumps.
6. Visual referencing skills.
7. Exploration line laying responsibilities and protocol
8. Advanced surveying techniques and map making
9. Multiple bottle handling.
10. Scooter towing procedures and protocol.
11. Rebreather failures protocol.

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Pre-dive planning to include:
3. Assess and review diving limitations,
4. Dive plan review,
5. Equipment review,
6. Equipment familiarization.
7. Navigation, to include:
8. Visual reference,
9. Guideline use,
10. Limited and simulated zero visibility.

11. Procedures for gas failures; Rebreather Gas Injection system, tank valve manipulation, gas-sharing, and regulator switching as appropriate.
12. Demonstrate proficiency in safe diving techniques, including pre-dive preparations, in-water activity, and post-dive assessment.
13. Gas-sharing scenarios to include:
14. Breath hold management,
15. Out of gas diver,
16. Gas-sharing of at least 1000 feet/300 meters,
17. Comfortably swim at least 200 feet/60 meters without a mask while gas-sharing
18. Use of various propulsion techniques.
19. Use of touch contact for limited and simulated zero visibility situations.
20. Use of line following techniques for limited/no visibility situations for 500 feet/150 meters.
21. Demonstrate the efficient deployment of a reserve light in less than 10 seconds.
22. Demonstrate excellent buoyancy control skills.
23. Perform a lost diver drill while remaining calm, horizontal and neutrally buoyant.
24. Perform a lost line drill while remaining calm, horizontal and neutrally buoyant in zero visibility conditions.
25. Demonstrate effective valve-management by switching regulators, shutting down a valve and returning the valve to the open position again.
26. Demonstrate proficiency with guideline management in the following situation:
27. Simulated zero visibility line following; this would incorporate touch-contact skills,
28. Efficient deployment and retrieval of the guideline,
29. Problem resolution including line entanglement, navigation in restrictive regions, and multiple line management.
30. Demonstrate advanced navigational ability by completing at least two jumps and successfully completing a circuit and/or traverse.
31. Demonstrate a calm demeanor while sharing air in simulated zero visibility for at least 1000'/300m.
32. Demonstrate effective and proficient use of rebreather for the purpose of extending penetrations.
33. Demonstrate facility with advanced decompression procedures by: 1) demonstrating the ability to calculate decompression "on the fly" and 2) by recalculating decompression obligations in the event of a lost decompression gas.
34. Demonstrate the ability to manage failed rebreather, regulators, first and second stages.
35. Demonstrate the ability to safely carry out all decompression obligations assuming the loss of rebreather and all backgas.
36. Demonstrate efficient, safe and ecological use of scooters.
37. Demonstrate the ability to run a guideline while scootering.
38. Demonstrate the ability to air-share while scootering through cave.
39. Demonstrate the ability to tow a diver whose diver propulsion vehicle has failed.
40. Demonstrate the ability to valve-breathe and hose-breathe.
41. Perform the following RB test:
    - O2 drop calculation,
    - Volume drops,
    - UTD PO2 times cycle.
42. Efficiency test:
    - Demonstrate proficiency with rebreather use and failures in cave environments.
    - Unit flooding recovery,
    - Hyperoxic mix problem solving,
    - Hypoxic mix problem solving,
    - Demonstrate ability for cave RB bailout exit with RB O2 bottle failure (mCCR),
    - Demonstrate ability for cave RB bailout exit with main bottom gas supply failure,
    - Demonstrate ability for cave OC bailout exit with catastrophic rebreather failure,
    - Demonstrate mixed team (RB and OC) dive planning.

Equipment Requirements

1. All equipment noted in paragraph 3.0.
2. Rebreather in UTD configuration.
3. RB Backgas cylinders to be AL 80's/85's/12's and 125's / 20lt.
4. Double isolation manifold for RB backgas.
5. Five spools / reels, each with a minimum of 100’/30m of line per diver. One spool line must be knotted each 30’/10m.
6. One primary reel per team, with a minimum of 400 feet/120 meters of line. Line must be knotted each 10’/3m.
7. At least ten line markers, of which at least five should be directional (line arrows) and five non-directional.
8. 4 stage bottles, 70’/21m, 120’/36m, 190’/57m and 240’/72m (AL80, 11L).
9. 1 Oxygen 6m bottle, (AL40, 7L).
10. 5 stage regulators (with QC6).
11. 2 Tank/scooter leashes.
12. RB cleaning kit.
13. Fresh sensors and scrubber material.
14. Drysuit.
15. Mixed gas analyzer and gas transfer whip (one each per team).
16. Electric dry suit heating recommended.

3-480 Wreck Penetration 1 Diver

Introduction

The UTD Wreck Penetration 1 is an "Essentials of Wreck Diving" class designed to prepare divers for basic skills needed to wreck dive and to penetrate the wreck safely while using doubles and a guideline. Students will learn the essentials of gas management, use of double cylinders, running a guideline, following the line and become familiar with the failures associated with wreck penetration. Class participates will become very familiar with the use of doubles, a penetration reel, laying and retrieving line, and no visibility line protocols. All protocols and procedures are derived from UTD overhead environment procedures and are applied to wreck diving penetration. Historically, introductory level wreck classes have been so heavily distilled that very little actual information remains. This class provides an excellent foundation for divers to build their wreck diving experience and a blue print to prepare for the UTD Technical Wreck Penetration Level 2.

Wrecks are an obvious attraction to any diver: they hold a promise of history, of mystery, and going where few dare. It's an underwater haunted house. Of course, they also hold a tremendous potential for danger to the unwary diver. Even the essential equipment, doubles and guidelines, are complicated and there are many subtle and potentially dangerous issues that divers must be acquainted with while wreck diving. Even if a diver is familiar and comfortable with all the essential gear, the introduction of an emergency can create undue levels of stress that can cause poor decision making. This class strives to both instruct students in techniques for proper wreck diving, and then simulate "failures" in a controlled manner to ensure the retention of protocols even in the face of problems. At UTD, we always believe in training beyond your level of diving, as opposed to diving beyond your level of training.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Minimum age of 21.
3. Completed UTD registration process.
4. UTD Essentials of Overhead or equivalent.
5. UTD Overhead Protocols class within 12 months (1 year)
6. Rescue and Emergency Procedures or equivalent.
7. A minimum of 100 dives beyond OW certification, 50 of which must be non-training dives (not part of a class).
8. All participants must be able to swim at least 300 yards in 14 min or must be able to swim at least 800 yards in 18 minutes with mask & fins.
9. All participants must be able to swim a distance of at least 50' (12m) on a breath hold or demonstrate an air share swim where the OOA diver swims at least 50' (15m) to the donating diver.
10. All participants must surface-tow a diver in full equipment, in the environment they will be diving in, for 10 minutes.
11. All participants must demonstrate a rescue of a diver simulating oxygen toxicity.

Duration

The UTD Wreck Level 1 class is normally conducted over a 3-day period following the UTD Overhead Protocols class, or as a 5 day class if combined with a Overhead Protocols class. As a stand alone it involves a minimum of 24 hours of instruction, encompassing both classroom and in-water work.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. All dives are to maintain a working PO2 of no greater than 1.4 Minimum Decompression dives, with the Max depth during class of 130ft / 39m.
3. Double tank configuration
4. Max penetration distance of 400'/120m (1 primary reel)
5. Use of one (1) main guideline only
6. Max gas penetration of 60cft/1800L
7. Long hose primary, and necklace style backup regulator hose configuration
8. Instructor to student ratio maximum 6:1 in the academic portion of the class, with a 4:1 for direct supervision for in water sessions

Course Content

The course is normally taught over 5 days, encompassing roughly 40 hours of instruction, including 10 hours of academics, and 16 dives in and around the wreck. This class will focus on the UTD protocols of overhead environment diving and what important knowledge, understanding and skills of wreck diving.

When merged with other UTD skills such as team diving and precision diver control, individuals are able to appreciate a whole new world of wreck penetration, having more fun while diving safer and more responsibly. Simply put, these techniques and principles enable divers to maximize their personal abilities and eliminate some of the frustrations common in conventional wreck diving.

Texts & Online Classroom

1. Online Online Classroom Materials – Wreck Diver
2. Wreck Diver Worksheet
3. Technical DVD is recommended

Academic Topics

1. UTD organization, limits of training, and course completion requirements
2. Working knowledge (including setup and failures) of a double tank configuration
3. Reel and guideline use
4. Dive team order and protocols
5. Touch contact
6. Use of safety spools and reels
7. Basic navigation skills
8. Extensive practice/use and failure of guidelines and protocols
9. The history and practice of minimum decompression
10. Physics, physiology, tables and operational considerations

Land Drills & Topics

1. Use of double cylinders
2. Line work (running line, tie-offs, team line protocol)
3. Special considerations for diving in an overhead environment
4. Buddy & Team awareness in an overhead environment
5. Communication skills
6. Gas management based on strict rule of thirds plus rock bottom
7. Appropriate risk evaluation and dive planning for wreck penetration

8. Review of finning techniques and diver trim for silty environments
9. Use of safety spools/reels
10. Reel and guideline use in emergency procedures, including touch contact and air-sharing techniques
11. Lost diver procedures
12. Lost guideline procedures
13. Basic navigation skills
14. Visual referencing skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5.
2. Pre-dive planning to include:
    a. Assess and review diving limitations
    b. Dive plan review
    c. Equipment review
    d. Equipment familiarization
3. Navigation, to include:
    a. Visual reference
    b. Guideline use
    c. Limited and simulated zero visibility
4. Procedures for gas failures, including valve manipulation, air-sharing, and regulator switching (as appropriate).
5. Demonstrate proficiency in safe diving techniques, including pre-dive preparations, in-water activity, and post-dive assessment.
6. Air-sharing scenarios to include:
    a. Breath hold management
    b. Out of air diver
    c. Air-sharing of at least 200 feet/60 meters
7. Use of various propulsion techniques.
8. Use of touch contact for limited and simulated zero visibility situations.
9. Use of line following techniques for limited/no visibility experiences.
10. Demonstrate the efficient deployment of a reserve light in less than 30 seconds.
11. Demonstrate excellent buoyancy control skills.
12. Perform a Lost Diver drill while remaining calm and maintaining a horizontal attitude and neutral posture.
13. Perform a Lost Line drill while remaining calm and maintaining a horizontal attitude and neutral posture.
14. Demonstrate effective valve-management by switching regulators, shutting down a valve in less than 15 seconds, and then returning the valve to the open position again in less than 15 seconds or a complete valve drill in 2 minutes.
15. Demonstrate proficiency with guideline management in the following situations:
    a. Simulated zero visibility line following; this would incorporate touch-contact skills
    b. Efficient deployment of the guideline
    c. Efficient removal of the guideline
16. Resolving line entanglement.

Equipment Specifications

1. All equipment noted in paragraph 3.0
2. One primary reel per team, with a minimum of 200 feet/60 meters of line
3. At least three (3) line markers of which at least two (2) should be directional (line arrows) and one (1) non-directional. Diver's initials or other identifying information should be readily visible.

3-482 Wreck Penetration 2 Diver

Purpose

The UTD Technical Wreck Penetration 2 is a "Mastery of Wreck Diving" class and is designed to build upon the UTD Wreck Penetration level 1 and the UTD Technical Diver combination (Helitrox and Decompression Procedures), providing the tools to penetrate wreck at depths beyond the recreational limits. Divers will use multiple stages and breathing mixtures to extend penetration and reduce decompression obligations. Students will learn to apply UTD overhead protocols to wreck diving while mastering the use of diving doubles, stages and conducting penetration with complex navigation inside wrecks. They will become familiar with the failures associated with this kind of diving. This class provides an excellent continuation for divers looking to round out their wreck education.

Combining wreck penetration with mixed gases for deeper diving seems like a logical leap to make, but unfortunately, it's always that which you don't realize you don't know that causes you problems. This Technical Wreck Penetration class is designed for people who are eager to press forward with more challenging exploration. We'll raise the bar on your own diving by introducing new considerations for all parts of your dive, from descent to deco. And, much like Wreck Penetration Level 1, we'll introduce these skills, then test them in a controlled manner to ensure your understanding. More so than any other environment, wreck diving requires a well-versed and proficient diver who's ready to think outside the box, whatever the situation. This class will help you understand how to get outside of the box and open your mind to critically analyze unforeseen circumstances and determine the best road out.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Minimum age of 21.
3. Completed UTD registration process.
4. UTD Wreck 1 and Trimix Diver or equivalent with assessment.
5. Minimum of 200 logged dives with at least 75 dives on double tanks, of which at least 25 are utilizing single stage or deco bottle and at least 25 dives beyond 100’/30m utilizing Helitrox/Trimix). Students should have completed at least 25 wreck dives, spent at least 10 dives in specific training scenarios in preparation for Wreck level 2.
6. All participants must be able to swim at least 300 yards in 14 min or must be able to swim at least 800 yards in 18 minutes with mask & fins.
7. All participants must be able to swim a distance of at least 50' (12m) on a breath hold or demonstrate an air share swim where the OOA diver swims at least 50' (15m) to the donating diver.
8. All participants must surface-tow a diver in full equipment, in the environment they will be diving in, for 10 minutes.
9. All participants must demonstrate a rescue of a toxing diver.

Duration

This class is a six (6) day class with over 50 hours of instruction, including 12 dives and 12 hours of instruction.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. All dives are to maintain a working PO2 of no greater than 1.4
3. All dive are to maintain an END less than 100 feet/30 meters, with a max depth of 200'/ 60m
4. Two 40cft (5.5L) Decompression bottles needed (70' (21m) and an Oxygen 20' (6m))
5. 1 AL 80 (11L) stage bottle (Marked as needed)
6. Nitrox & Helitrox/Trimix
7. Double tank configuration with an argon system if using dry suit
8. Long hose primary, and necklace style backup regulator hose configuration
9. Instructor to student ratio maximum 6:1 in the land drills, with a 3:1 for direct supervision for in water sessions.

Course Contents

While the use of Trimix is not tremendously complicated, there are many subtle and potentially dangerous issues with which divers must be aquatinted while penetrating a wreck utilizing multiple stages. UTD believes that individuals in the pursuit of technical wreck training should not be limited by the information made available to them. Instead this information should cover all the practical and theoretical issues likely to be encountered by the wreck diver.

This class is structured around either a 6 day course cumulatively involves a minimum of 50 hours of instruction, designed to provide a working knowledge of Wreck penetration, Trimix, including an understanding of the history and practice of decompression, physics, physiology, tables and operational considerations. This class is a decompression class, divers in this depth range must be aware of the potential for entering into decompression commitments and should be prepared. Course requirements include 12 hours of academics, and 12 dives: 8 practice dives, and 4 experience dives with Trimix while penetrating deep wrecks, with all 12 dives conducted with multiple stage and deco bottles.

Texts & Online Classroom

1. Online Classroom Materials – Wreck Diver
2. Wreck Diver Worksheet
3. Technical DVD is recommended

Academic Topics

1. UTD organization, limits of training, and course completion requirements
2. Working knowledge (including setup and failures) of doubles tank configuration
3. Reel and guideline use
4. Dive team order and protocols
5. Touch contact
6. Use of safety spools and reels
7. Stage and Deco bottle management inside and around wreck
8. Extensive practice/use and failure of guidelines and protocols
9. The history and practice of “decompression on the fly”
10. Physics, physiology, tables and operational considerations

Land Drills & Topics

1. Use of double cylinders, stages and deco bottles
2. Line work (running line, tie-offs, team line protocol)
3. Special considerations for diving in an overhead environment
4. Buddy & Team awareness in an overhead environment
5. Communication skills
6. Gas management based on strict rule of thirds plus rock bottom
7. Appropriate risk evaluation and dive planning for wreck penetration
8. Review of finning techniques and diver trim for silty environments
9. Use of safety spools/reels
10. Reel and guideline use in emergency procedures, including touch contact and air-sharing techniques
11. Lost diver procedures
12. Lost guideline procedures
13. Basic navigation skills
14. Visual referencing skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5.
2. Pre-dive planning to include:
    a. Assess and review diving limitations
    b. Dive plan review
    c. Equipment review
    d. Equipment familiarization
3. Navigation, to include:
    a. Visual reference
    b. Guideline use
    c. Limited and simulated zero visibility
4. Procedures for gas failures, including valve manipulation, air-sharing, and regulator switching (as appropriate), stage use.
5. Air-sharing scenarios to include:
6. Breath hold management:
    a. Out of air diver
    b. Air-sharing of at least 300 feet/90 meters
    c. Comfortably swim at least 200 feet/60 meters without a mask while air-sharing
    d. Air sharing from a stage bottle or deco bottle
7. Use of various propulsion techniques.
8. Use of touch contact for limited and simulated zero visibility situations.
9. Use of line following techniques for limited/no visibility situations.
10. Demonstrate the effective deployment of a reserve light in less than 30 seconds.
11. Demonstrate excellent buoyancy control skills.
12. Perform a Lost Diver drill while remaining calm and maintaining a horizontal attitude and neutral posture.
13. Perform a Lost Line drill while remaining calm and maintaining a horizontal attitude and neutral posture in simulated zero visibility conditions.
14. Demonstrate effective valve-management by switching regulators, shutting down a valve in less than 10 seconds and returning the valve to the open position again in less than 10 seconds.

15. Demonstrate proficiency with guideline management in the following situation:
    a. Simulated zero visibility line following; this would incorporate touch-contact skills
    b. Efficient deployment of the guideline
    c. Efficient removal of the guideline
16. Problem resolution, including line entanglement, navigation in restrictive areas, and multiple line management.
17. Demonstrate a calm demeanor while sharing air in simulated zero visibility for at least 200 feet/60 meters.
18. Demonstrate an understanding of the use of a stage & deco cylinder for the purpose of extending penetration.

Equipment Specifications

UTD equipment configuration is designed to be simple, efficient, and consistent. To get the most from your class it is advisable that you take the course in a complete UTD style system. To better assist you in preparing for class, we have listed below our suggested equipment lists for the class. Please check out our Learning Center or consult with us if you have further questions about your equipment needs.

1. All equipment noted in paragraph 3.0
2. One primary reel per team, with a minimum of 200 feet/60 meters of line
3. At least six (6) line markers of which at least three (3) should be directional (line arrows) and three (3) non-directional. Diver's initials or other identifying information should be readily visible.

3-510 mCCR 1 Rebreather Diver

Purpose

The mCCR Rebreather Diver 1 is the first step to becoming a **certified** rebreather diver. This course is a foundational class that is designed to educate individuals in basic rebreather technologies and cultivate diver proficiency in the use of MX fully closed-circuit technology and how to apply it to their recreational diving needs. The mCCR Rebreather Diver 1 course assumes that individuals are capable divers who are capable of single stage/deco bottle diving, but have no experience in the use of rebreather technology. This course will cover using a fully closed rebreather in recreational diving depths and staying within no decompression limits.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6
2. Must be a minimum age of 21 years of age.
3. Must have completed the online UTD mCCR 1 rebreather class and test.
4. Must have UTD Tech 1 or equivalent.
5. Must have a minimum of 125 dives.
6. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.
7. Must be able to swim at least 300 yards/275 meters in less than 12 minutes without stopping.
8. All participants must be able to tow a diver in full equipment, in the environment they will be diving in, for 10 minutes.
9. All participants must demonstrate the rescue of a diver simulating oxygen toxicity or unconsciousness.

Course Limits

1. General Training Limits as outlined in Section 1.4.
2. Student to Instructor ratio is not to exceed 4:1 during any in-water training.
3. Maximum depth 130 feet / 39 meters
4. Standard gases: Nitrox 32, 25/25
5. Stay within No Decompression Limits (NDL)

Texts

1. Online Classroom Materials – mCCR Diver 1
2. Gas Planning Worksheet
3. Technical Diver DVD is recommended

Course Content

The mCCR Rebreather Diver 1 course is normally conducted over a 7-day period, and cumulatively involves a minimum of 60 hours of instruction designed to provide a working knowledge of rebreather diving, including history, design, function, failures, tables, and operational considerations.

Course requirements include a minimum of ten (10) hours of academic review and 4 confined water dives (4 hours or 240 mins) and eight (8) rebreather dives (8 hours or 480 minutes), of which four (4) are critical skills dives and two (2) are experience dives.

Academic Topics

A. Purpose
- Risk
- Benefit
- Advantages
- Disadvantages

B. History

C. Types of Rebreather
- Semi Closed Active Addition
- Semi Closed Passive Addition
- Fully Closed System (eCCR and mCCR)

D. Common Components of a Rebreather and how they function
- Mouthpiece & hoses
- Counter lung
- CO2 Canister & Chemical Removal by the scrubber
- Gas Addition System
- Water System
- Gas Management & Information System

E. Inherent Risks of Rebreathers
- Hypoxia
- Hyperoxia
- Hypercapnia
- Hyperventilation

F. Introduction to the MX Rebreather
- MX Design
- Gas Circulation During Inhalation
- Gas Circulation During Exhalation
- Gas Changes
- O2 and Diluent Gas Addition
- Diving Logistics

G. MX Rebreather Alarms and Warnings
- Intrusion - water or moisture
- Failure Susceptibility
- Information Content
- Verification
- Physiological Monitoring

H. The Physics Behind a MX Rebreather
- O2 Toxicity
- Decompression
- Theory & Review
- Rebreather vs. Open Circuit
- Oxygen Consumption (VO2)

I. Configuration
- UTD/DIR Foundation
- MX Configuration
- Rebreather configured UTD/DIR style

J. MX DIR Rebreather Physical Design
- Components, Functions, Failures, Problem Recognition & Alarms, Problem Solving
- Mouthpiece, Double hoses, Check Valves & Bailout regulators
- Water Removal System
- CO2 Canister
- Breathing Loop
- BOV

- O2 and Diluent Addition Systems
- MX Diving Head

K. Problem Recognition & Management
- Scrubber Flooded leading to Hypercapnia
- CO2 Absorbent Failures leading to Hypercapnia
- Check Valve Failure leading to Hypercapnia
- Addition Failures leading Hypoxia
- Mechanical Failure leading to Hyperoxia
- Gas supply failures
- Diving Conditions leading to Hypoxia
- Bailout Scenarios
- Physiological Monitoring

L. The Importance of Instinctive Physiological Monitoring
- Pre Dive Planning & Preparation
- Gas Duration
- Gas Choice
- CO2 Absorbent Management
- Pre-dive setup and calibration
- Pre Dive checks
- Pre Dive Breathing

M. Pre-Dive Planning
- Gas Choice
- Gas Duration
- Gas management scenarios
- Decompression Procedures
- CO2 Absorbent Management & Duration
- Pre-dive checks/Vacuum Test
- Open Circuit Bailouts

N. Diving the MX mCCR Rebreather
- PPO2 Management
- Lung Volume
- Buoyancy - Drysuit/BCD
- Descents/Ascents
- Flow-checks
- Breathing Characteristics
- Monitoring the unit & Alarms
- Flooding & Failures
- Monitoring the gas
- Loop Purging with mask
- Internal and External Failures and problem solving

O. Post Dive Procedure
- Rinse and disinfecting unit after use
- Storing unit for long term

P. Perceived vs. True Work Of Breathing In Rebreather

Q. Need for continuing Education and skill reinforcement

R. Debunking Rebreather Misconceptions

Land Drills and In Water Topics

1. Pre Dive Setup and Calibration
2. MX Rebreather Function, Failures and Flow checks
3. Trim and Buoyancy
4. PPO2 Drop Test
5. Basic 6 mCCR Skills
6. S-Drills
7. Valves Drills
8. SMB Deployment
9. Rescues
10. Advanced procedures such as Gas-addition (O2/Diluent) Failures, pscr mode

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Assess and review diving limitations.
3. Understand and develop skills to master the priority assignment philosophy
4. Demonstrate the ability to perform the Pre Dive Setup and calibrate the unit.
5. Demonstrate proficiency with going to and from Closed circuit to Open Circuit
6. Demonstrate the ability to recognize, evaluate and correct any gas addition interruptions and/or failures, then terminating or continuing the dive as necessary.
7. Demonstrate the ability to recognize, evaluate and correct water intrusion, and what to do to remove excess water.
8. Demonstrate excellent buoyancy control skills.
9. Demonstrate proficiency with the Basic 6 CCR skills
10. Procedures for gas failures; including valve manipulation, air-sharing, and regulator switching as appropriate.
11. Lift bag/surface marker buoy deployment.
12. Be able to comfortably demonstrate at least two propulsion techniques that would be appropriate in delicate and/or silty environments.
13. Air-sharing scenarios for at least 200 feet/60 meters
14. Demonstrate effective valve-management by switching regulators, shutting down a valve and returning the valve to the open position.
15. Demonstrate water tight integrity of the unit by performing a vacuum and pressure test (Pre Dive Check)
16. Demonstrate the capacity to efficiently supply gas to an out of air diver.
17. Demonstrate the ability to efficiently manage gas addition systems with either hand.
18. Demonstrate efficient ability to perform 2 loop recoveries.
2. Demonstrate proficiency with Toxing Diver rescue.
3. Demonstrate proficiency with maintain a constant PPO2 within 0.2 of the instructor discretion

Equipment Requirements

15. Rebreather: MX mCCR Fully-closed circuit rebreather
16. Tank/Cylinders: Students are required to use tanks/cylinders that provide sufficient diluent and bailout to meet rock bottom standards and have a single outlet valve, which allows for the use of a single first stages and allows the diver to manipulate the tank valves.
    a. A single oxygen bottle with a single first stage is used to supply the rebreather with O2.

b. The diluent/bailout bottle with a single first stage is used to supply the rebreather with gas. All dives must start with a minimum of 40cf/1200 liters of gas in bailout cylinder.

17. Regulator: A single first-stage from the diluent/bailout tank must supply the diver with bailout gas. This must supply the Bail out valve (BOV) and at least one open circuit regulator, a 7 foot/2 meter long hose with second stage for air share donation purposes. This must also supply the BCD and Drysuit where applicable. There must be a pressure gauge on the diluent system to identify diluent/bailout gas quantity.

18. 1 Oxygen bottle with first stage and inlet hose to supply rebreather
19. Buoyancy Compensator: Back-mounted wings, mated with a harness and back plate
20. At least one depth-measuring device
21. Two timekeeping devices
22. Decompression tables
23. Mask and fins: fins must be of non-split variety
24. At least one cutting device
25. Underwater slate or Wet Notes
26. One reel/spool, with 100 feet/30 meters of line, per diver
27. Exposure suit appropriate for the duration of exposure
28. At least one surface marker buoy per diver

3-512 mCCR 2 Rebreather Diver

Purpose

The UTD mCCR Rebreather Diver 2 course is a critical skills plus experience class designed to further educate individuals in the use of MX rebreather technology as it applies to technical diving depth limits and decompression and will make divers proficient in the use of fully-closed circuit technologies while diving mixes (Helitrox) that allow divers to push beyond the recreational depth limits, and allows divers to gain practical experience with their rebreather while learning to apply its use to their extended range activities. This course will cover using the fully closed rebreather in technical diving range while using a single bottle for bailout decompression.

Prerequisites

10. Must meet UTD General Course Prerequisites as outlined in Section 1.6
11. Must be a minimum age of 21 years of age.
12. Must have completed the online UTD rebreather class and test
13. Must be a UTD mCCR Rebreather 1 (or equivalent) and UTD Technical Diver or equivalent.
14. Must have at least 200 scuba dives beyond open water qualification. Fifty (50) must have been in doubles, with fifty (50) involving rebreathers.
15. Must have fifty (50) hours on a rebreather.
16. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.
17. Must be able to swim at least 300 yards/275 meters in less than 12 minutes without stopping.
18. All participants must be able to tow a diver in full equipment, in the environment they will be diving in, for 10 minutes.
19. All participants must demonstrate the rescue of a diver simulating oxygen toxicity or unconsciousness.

Course Limits

6. General Training Limits as outlined in Section 1.4.
7. Student to Instructor ratio is not to exceed 4:1 during any in-water training.
8. Maximum depth 160 feet / 45 meters.
9. Standard gases: Nitrox 32, 25/25, 21/35, 18/45.
10. Maximum decompression time 30 minutes.

Texts

1. Online Classroom Materials – mCCR Diver 2
2. Gas Planning Worksheet
3. Technical Diver and Rebreather Diver DVD is recommended

Course Content

The mCCR Rebreather Diver 2 course is normally conducted over a 5-day period, and cumulatively involves a minimum of 40 hours of instruction designed to provide a working knowledge of rebreather diving, including history, design, function, failures, tables, and operational considerations while using helitrox mixes that allow the diver to go beyond recreational depth limits and venture into decompression.

Course requirements include a minimum of ten (10) hours of academic review and ten (10) rebreather dives (10 hours or 600 mins) , of which six (6) are critical skills dives and four (4) are experience dives.

Academic Topics

A. Purpose
- Risk
- Benefit
- Advantages
- Disadvantages

B. History

C. Types of Rebreather
- Semi Closed Active Addition
- Semi Closed Passive Addition
- Fully Closed System (eCCR and mCCR)

D. Common Components of a Rebreather and how they function
- Mouthpiece & hoses
- Counter lung
- CO2 Canister & Chemical Removal by the scrubber
- Gas Addition System
- Water System
- Gas Management & Information System

E. Inherent Risks of Rebreathers
- Hypoxia
- Hyperoxia
- Hypercapnia
- Hyperventilation

F. Introduction to the MX Rebreather
- MX Design
- Gas Circulation During Inhalation
- Gas Circulation During Exhalation
- Gas Changes
- O2 and Diluent Gas Addition
- Diving Logistics

G. MX Rebreather Alarms and Warnings
- Intrusion - water or moisture
- Failure Susceptibility
- Information Content
- Verification
- Physiological Monitoring

H. The Physics Behind a MX Rebreather
- O2 Toxicity
- Decompression
- Theory & Review
- Rebreather vs. Open Circuit
- Oxygen Consumption (VO2)

I. Configuration
- UTD/DIR Foundation
- MX Configuration
- Rebreather configured UTD/DIR style

J. MX DIR Rebreather Physical Design
- Components, Functions, Failures, Problem Recognition & Alarms, Problem Solving
- Mouthpiece, Double hoses, Check Valves & Bailout regulators
- Water Removal System
- CO2 Canister
- Breathing Loop
- BOV
- O2 and Diluent Addition Systems
- MX Diving Head

K. Problem Recognition & Management
- Scrubber Flooded leading to Hypercapnia
- CO2 Absorbent Failures leading to Hypercapnia
- Check Valve Failure leading to Hypercapnia
- Addition Failures leading Hypoxia
- Mechanical Failure leading to Hyperoxia
- Gas supply failures
- Diving Conditions leading to Hypoxia
- Bailout Scenarios
- Physiological Monitoring

L. The Importance of Instinctive Physiological Monitoring
- Pre Dive Planning & Preparation
- Gas Duration
- Gas Choice
- CO2 Absorbent Management
- Pre-dive setup and calibration
- Pre Dive checks
- Pre Dive Breathing

M. Pre-Dive Planning
- Gas Choice
- Gas Duration
- Gas management scenarios
- Decompression Procedures
- CO2 Absorbent Management & Duration
- Pre-dive checks/Vacuum Test
- Open Circuit Bailouts

N. Diving the MX mCCR Rebreather
- PPO2 Management
- Lung Volume
- Buoyancy - Drysuit/BCD
- Descents/Ascents
- Flow-checks
- Breathing Characteristics
- Monitoring the unit & Alarms
- Flooding & Failures
- Monitoring the gas
- Loop Purging with mask
- Internal and External Failures and problem solving

O. Post Dive Procedure
- Rinse and disinfecting unit after use
- Storing unit for long term

P. Perceived vs. True Work Of Breathing In Rebreather
Q. Need for continuing Education and skill reinforcement
R. Debunking Rebreather Misconceptions

Land Drills and Topics

1. Pre Dive Setup and Calibration
2. MX Rebreather Function, Failures, Gas sharing, Flow checks
3. Manifold Failures
4. Gas-addition (O2/Diluent) Failures
5. Air-sharing
6. Water Clearing
7. Loop Recoveries
8. Rescues
9. Decompression Bottle Deployment

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Assess and review diving limitations.
3. Understand and develop skills to master the priority assignment philosophy
4. Demonstrate the ability to perform the Pre Dive Setup and calibrate the unit.
5. Demonstrate proficiency with going to and from Closed circuit to Open Circuit
6. Demonstrate the ability to recognize, evaluate and correct any gas addition interruptions and/or failures, then terminating or continuing the dive as necessary.
7. Demonstrate the ability to recognize, evaluate and correct water intrusion, and what to do to remove excess water.
8. Demonstrate excellent buoyancy control skills.
9. Procedures for gas failures; including valve manipulation, air-sharing, and regulator switching as appropriate.
10. Demonstrate the effective diagnosis and correct response to simulated rebreather problems to a level 2 or higher.
11. Lift bag/surface marker buoy deployment.
12. Be able to comfortably demonstrate at least two propulsion techniques that would be appropriate in delicate and/or silty environments.
13. Air-sharing scenarios for at least 200 feet/60 meters
14. Demonstrate effective valve-management by switching regulators, shutting down a valve and returning the valve to the open position.
15. Demonstrate water tight integrity of the unit by performing a vacuum and pressure test (Pre Dive Check)
16. Demonstrate the capacity to efficiently supply gas to an out of air diver.
17. Demonstrate the ability to efficiently manage gas addition systems with either hand.
18. Demonstrate efficient ability to perform 2 loop recoveries.
4. Demonstrate proficiency with Toxing Diver rescue.
5. Demonstrate proficiency with maintain a constant PPO2 within 0.2 of the instructor discretion
6. Demonstrate comfort with CC Decompression and deployment of OC decompression bottle.

Equipment Requirements

29. Rebreather: MX mCCR Fully-closed circuit rebreather

30. Tank/Cylinders: Students are required to use tanks/cylinders that provide sufficient diluent and bailout to meet rock bottom standards and have a single outlet valve, which allows for the use of a single first stages and allows the diver to manipulate the tank valves.
    a. A single oxygen bottle with a single first stage is used to supply the rebreather with O2.
    b. The diluent/bailout bottle with a single first stage is used to supply the rebreather with gas. All dives must start with a minimum of 40cf/1200 liters of gas in bailout cylinder.

31. Regulator: A single first-stage from the diluent/bailout tank must supply the diver with bailout gas. This must supply the Bail out valve (BOV) and at least one open circuit regulator, a 7 foot/2 meter long hose with second stage for air share donation purposes. This must also supply the BCD and Drysuit where applicable. There must be a pressure gauge on the diluent system to identify diluent/bailout gas quantity.

32. An Oxygen bottle with large enough volume to act as OC bailout decompression
33. Buoyancy Compensator: Back-mounted wings, mated with a harness and back plate
34. At least one depth-measuring device
35. Two timekeeping devices
36. Decompression tables
37. Mask and fins: fins must be of non-split variety
38. At least one cutting device
39. Underwater slate or Wet Notes
40. One reel/spool, with 100 feet/30 meters of line, per diver
41. Exposure suit appropriate for the duration of exposure
42. At least one surface marker buoy per diver

3-514 mCCR 3 Rebreather Diver

Purpose

The UTD mCCR Rebreather Diver 3 course is designed to further educate individuals in the use of MX rebreather technology as it applies to trimix depth ranges and decompression schedules that require multi bottle decompression bailout. This course will make divers proficient in the use of fully-closed circuit technologies while diving Trimix, and allows divers to gain practical experience with their rebreather while learning to apply its use to their extended range trimix activities. Emphasis here is placed on advanced concepts such as rebreather theory, gas mixture/management, control of exposures to oxygen, and the fatal funnel (hyperoxia, hypoxia and hypercapnia.) However, the course is heavily experience based and deals most specifically with the practical implications of closed circuit rebreather diving.

Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 21 years of age.
3. Must be a UTD mCCR Rebreather 2 (equivalent not allowed) and UTD Trimix or equivalent.
4. Must have completed the online UTD mCCR rebreather class and test
5. Must have at least 400 scuba dives of which one hundred (100) must have been in doubles, with at least two hundred (200) involving a mCCR.
6. Must have two hundred (200) hours on a fully closed rebreather, fifty (50) of which must be in technical diving range and require decompression.
7. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.
8. Must be able to swim at least 400 yards/365 meters in less than 14 minutes without stopping.
9. All participants must be able to tow a diver in full equipment, in the environment they will be diving in, for 10 minutes.
20. All participants must demonstrate the rescue of a diver simulating oxygen toxicity or unconsciousness.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 3:1 during any in water training
3. Maximum depth 250 ft/75m
4. Standard UTD Trimix gases and decompression limits apply
5. No overhead environment diving
6. No goal-oriented dives

Texts

1. Online Classroom Materials – mCCR Diver 3
2. Gas Planning Worksheet
3. Technical Diver DVD is recommended

Course Content

The UTD mCCR Rebreather Diver 3 course is normally conducted over a 5-day period, and cumulatively involves a minimum of 40 hours of instruction designed to ensure a working knowledge of rebreather diving, including failure situations, and life-saving solutions. Topics also include a review of decompression diving, oxygen tolerance, and other operational considerations central to the exploration of extended range environments with a rebreather.

Course requirements include a minimum of ten (10) hours of academic review and at least 10 (10) open water dives, of which four (4) will be critical skills dives and six (6) will be conducted in excess of 150 feet/45 meters and will include multi stage decompression. At least two (2) dives will be conducted below 200 feet/60 meters utilizing Trimix and multi bailout decompression bottles.

Academic Topics

A. Purpose
   - Risk
   - Benefit
   - Advantages
   - Disadvantages

B. History

C. Types of Rebreather
   - Semi Closed Active Addition
   - Semi Closed Passive Addition
   - Fully Closed System (eCCR and mCCR)

D. Common Components of a Rebreather and how they function
   - Mouthpiece & hoses
   - Counter lung
   - CO2 Canister & Chemical Removal by the scrubber
   - Gas Addition System
   - Water System
   - Gas Management & Information System

E. Inherent Risks of Rebreathers
   - Hypoxia
   - Hyperoxia
   - Hypercapnia
   - Hyperventilation

F. Introduction to the MX Rebreather
   - MX Design
   - Gas Circulation During Inhalation
   - Gas Circulation During Exhalation
   - Gas Changes
   - O2 and Diluent Gas Addition
   - Diving Logistics

G. MX Rebreather Alarms and Warnings
   - Intrusion - water or moisture
   - Failure Susceptibility
   - Information Content
   - Verification
   - Physiological Monitoring

H. The Physics Behind a MX Rebreather
- O2 Toxicity
- Decompression
- Theory & Review
- Rebreather vs. Open Circuit
- Oxygen Consumption (VO2)

I. Configuration
- UTD/DIR Foundation
- MX Configuration
- Rebreather configured UTD/DIR style

J. MX DIR Rebreather Physical Design
- Components, Functions, Failures, Problem Recognition & Alarms, Problem Solving
- Mouthpiece, Double hoses, Check Valves & Bailout regulators
- Water Removal System
- CO2 Canister
- Breathing Loop
- BOV
- O2 and Diluent Addition Systems
- MX Diving Head

K. Problem Recognition & Management
- Scrubber Flooded leading to Hypercapnia
- CO2 Absorbent Failures leading to Hypercapnia
- Check Valve Failure leading to Hypercapnia
- Addition Failures leading Hypoxia
- Mechanical Failure leading to Hyperoxia
- Gas supply failures
- Diving Conditions leading to Hypoxia
- Bailout Scenarios
- Physiological Monitoring

L. The Importance of Instinctive Physiological Monitoring
- Pre Dive Planning & Preparation
- Gas Duration
- Gas Choice
- CO2 Absorbent Management
- Pre-dive setup and calibration
- Pre Dive checks
- Pre Dive Breathing

M. Pre-Dive Planning
- Gas Choice
- Gas Duration
- Gas management scenarios
- Decompression Procedures
- CO2 Absorbent Management & Duration
- Pre-dive checks/Vacuum Test
- Open Circuit Bailouts

N. Diving the MX mCCR Rebreather
- PPO2 Management
- Lung Volume
- Buoyancy - Drysuit/BCD
- Descents/Ascents
- Flow-checks
- Breathing Characteristics
- Monitoring the unit & Alarms
- Flooding & Failures

- Monitoring the gas
- Loop Purging with mask
- Internal and External Failures and problem solving

O. Post Dive Procedure
- Rinse and disinfecting unit after use
- Storing unit for long term

P. Perceived vs. True Work Of Breathing In Rebreather
Q. Need for continuing Education and skill reinforcement
R. Debunking Rebreather Misconceptions

Land Drills and Topics

1. Pre Dive Setup and Calibration
2. MX Rebreather Function, Failures, Gas sharing, Flow checks
3. Manifold Failures
4. Gas-addition (O2/Diluent) Failures
5. Air-sharing
6. Water Clearing
7. Loop Recoveries
8. Rescues
9. Multiple decompression bottle management and deployment

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Access and review diving limitations.
3. Understand and develop skills to master the priority assignment philosophy
4. Procedures for gas failures; including valve manipulation, air-sharing, and regulator switching as appropriate.
5. Demonstrate the ability to deploy a lift bag/surface marker buoy in under two minutes while hovering stationary. Participants should not vary in depth more than 5 feet/1.5 meters.
6. Demonstrate the capacity to recognize, evaluate and correct floods, and then discharge excess water.
7. Demonstrate the effective diagnosis and correct response to simulated rebreather problems to a level 3 or higher.
8. Air-sharing scenarios for at least 200 feet/60 meters.
9. Demonstrate effective valve-management by switching regulators, shutting down a valve and returning the valve to the open position.
10. Demonstrate a clean and efficient removal of stage and/or decompression bottles while hovering horizontal. The participant must be capable of removing, replacing and plugging in a deco bottle in less than 90 seconds.
11. Demonstrate the ability to recognize the presence of elevated C02 levels.
12. Demonstrate the ability to comfortably switch gases using the gas addition manifold while maintaining good trim and neutral buoyancy.
13. Demonstrate proficiency in safe diving procedures, including assembly, vacuum and pressure test, pre-dive preparations, pre dive vacuum test, flow check, in-water activity and post dive assessment and break down.
14. Comfortably swim for at least 50' without a mask while diving breathing on Closed Circuit.
15. Demonstrate the ability to safely switch between Closed Circuit and Open Circuit

16. Efficiently and comfortably demonstrate how to donate air to an out of air diver in multiple air sharing episodes from Closed Circuit with one or more experiences to include a distance of at least 30 feet (9 meters).
17. Be able to comfortably demonstrate use, manipulation and failures of the gas addition system.
18. Demonstrate awareness of the working of a team member's Rebreather and a concern for safety, responding quickly to visual cues and diver partner needs if the RB should fail.
19. Demonstrate proficiency with dive rescue techniques, including effective management of the following situations: assisting a panic stricken diver, a convulsing diver and an unconscious diver. Demonstrate reasonable proficiency with use of the Rebreather during ascents, descents and diving.

Equipment Requirements

43. Rebreather: MX mCCR Fully-closed circuit rebreather

44. Tank/Cylinders: Students are required to use tanks/cylinders that provide sufficient diluent and bailout to meet rockbottom standards and have a single outlet valve, which allows for the use of a single first stages and allows the diver to manipulate the tank valves.
    a. A single oxygen bottle with a single first stage is used to supply the rebreather with O2.
    b. The diluent/bailout bottle with a single first stage is used to supply the rebreather with gas. All dives must start with a minimum of 40cf/1200 liters of gas in bailout cylinder.

45. Regulator: A single first-stage from the diluent/bailout tank must supply the diver with bailout gas. This must supply the Bail out valve (BOV) and at least one open circuit regulator, a 7 foot/2 meter long hose with second stage for air share donation purposes. This must also supply the BCD and Drysuit where applicable. There must be a pressure gauge on the diluent system to identify diluent/bailout gas quantity.

46. 2 Decompression bottles (Nitrox 50 and Oxygen) with appropriate volume and regulators.
47. Buoyancy Compensator: Back-mounted wings, mated with a harness and back plate
48. At least one depth-measuring device
49. Two timekeeping devices
50. Decompression tables
51. Mask and fins: fins must be of non-split variety
52. At least one cutting device
53. Underwater slate or Wet Notes
54. One reel/spool, with 100 feet/30 meters of line, per diver
55. One primary reel per team, with a minimum of 300 feet/90 meters of line
56. Three lights: one primary and two secondary
57. Exposure suit appropriate for the duration of exposure
58. At least one surface marker buoy per diver

3-520 pSCR 1 Rebreather Diver

Purpose

The UTD pSCR Rebreather Diver 1 course is designed to educate individuals in basic rebreather technologies, cultivate diver proficiency in the use of pSCR (RB80-style) semi-closed circuit technology, and introduce divers to the use of enriched air. The Rebreather 1 course assumes that individuals are capable divers, but have limited experience in the use of rebreather technology.

Prerequisites

21. Must meet UTD General Course Prerequisites as outlined in Section 1.6
22. Must be a minimum age of 21 years of age.
23. Must have completed the online UTD RB1 class and test
24. Must have UTD DIR Essentials of Tech or equivalent.
25. Must have a minimum of 75 dives.
26. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.
27. Must be able to swim at least 300 yards/275 meters in less than 12 minutes without stopping.

Course Limits

11. General Training Limits as outlined in Section 1.4.
12. Student to Instructor ratio is not to exceed 4:1 during any in-water training.
13. Maximum depth 130 feet / 39 meters.
14. No stage decompression.

Course Content

The UTD Rebreather 1 course is normally conducted over a 5-day period, and cumulatively involves a minimum of 40 hours of instruction designed to provide a working knowledge of rebreather diving, including history, design, function, failures, tables, and operational considerations.

Course requirements include a minimum of ten (10) hours of academics and ten (10) rebreather dives, of which eight (6) are critical skills dives and two (2) are experience open water dives.

Online Classroom Courses & Text

1. Online Classroom Materials – PSCR 1
2. Rebreather Planning Sheets
3. Technical DVD is recommended

Academic Topics

A. Purpose
- Risk
- Benefit
- Advantages
- Disadvantages

B. History

C. Types of Rebreather
- Semi Closed Active Addition
- Semi Closed Passive Addition
- Fully Closed System

D. Common Components of a Rebreather and how they function
- Mouthpiece & hoses
- Counter lung
- CO2 Canister & Chemical Removal by the scrubber
- Gas Addition System
- Automatic Water System
- Gas Management & Information System

E. Inherent Risks of Rebreathers
- Hypoxia
- Hyperoxia
- Hypercapnia
- Hyperventilation

F. Introduction to the pSCR (RB80-style) Rebreather
- pSCR (RB80-style) Design
- Gas Circulation During Inhalation
- Gas Circulation During Exhalation
- Gas Changes
- Passive Gas Addition
- Diving Logistics

G. pSCR (RB80-style) Rebreather Alarms and Warnings
- Intrusion
- Failure Susceptibility
- Information Content
- Verification
- Physiological Monitoring

H. The Physics Behind a pSCR (RB80-style) Rebreather
- O2 Toxicity
- Decompression
- Theory & Review
- Rebreather vs. Open Circuit
- Oxygen Consumption (RMV)

I. Configuration
- DIR Foundation
- pSCR (RB80-style) Configuration
- Rebreather configured DIR style

J. pSCR (RB80-style) DIR Rebreather Physical Design
- Components, Functions, Failures, Problem Recognition & Alarms, Problem Solving
- Mouthpiece, Double hoses, Check Valves & Bailout regulators
- Automatic Water Removal System

- CO2 Canister
- Main Bellows
- Inner Bellows & Overpressure Dump Valve
- Counter Lung Actuated Gas Addition Regulators

K. Problem Recognition & Management
- Scrubber Flooded leading to Hypercapnia
- CO2 Absorbent Failures leading to Hypercapnia
- Check Valve Failure leading to Hypercapnia
- Addition Failures leading Hypoxia
- Mechanical Failure leading to Hyperoxia
- Gas supply failures
- Diving Conditions leading to Hypoxia
- Bailout Scenarios
- Physiological Monitoring

L. The Importance of Instinctive Physiological Monitoring
- Pre Dive Planning & Preparation
- Gas Duration
- Gas Choice
- CO2 Absorbent Management
- Pre-dive checks

M. Pre-Dive Planning
- Gas Choice
- Gas Duration
- Gas management scenarios
- Decompression Procedures
- CO2 Absorbent Management & Duration
- Pre-dive checks/Vacuum Test
- Open Circuit Bailouts

N. Diving the pSCR (RB80-style) Rebreather
- Descents/Ascents on OC
- Flow-checks
- Buoyancy Control
- Breathing Characteristics
- Monitoring the unit & Alarms
- Flooding & Failures
- Monitoring the gas
- Loop Purging with mask

O. Post Dive Procedure
- Rinse hoses between dives on same day
- Rinse unit after 1 day's use
- Disinfect and dry hoses and unit after 5 day's use

P. Perceived vs. True Work Of Breathing In Rebreather

Q. Need for continuing Education and skill reinforcement

R. Debunking Rebreather Misconceptions

Land Drills and Topics

1. Rebreather Function, Failures, Gas sharing, Flow checks
2. Air Manifold Failures
3. Gas-addition Failures
4. Air-sharing

Required Dive Skills & Drills

1. All skills and drills as outlined in the General Diving Skills, Section 1.5.
2. Assess and review diving limitations.
3. Demonstrate the ability to recognize, evaluate and correct gas interruptions, terminating or continuing the dive as necessary.
4. Demonstrate the ability to recognize, evaluate and correct water intrusion, and what to do to remove excess water.
5. Demonstrate excellent buoyancy control skills.
6. Procedures for gas failures; including valve manipulation, air-sharing, and regulator switching as appropriate.
7. Lift bag/surface marker buoy deployment.
8. Be able to comfortably demonstrate at least two propulsion techniques that would be appropriate in delicate and/or silty environments.
9. Use of touch contact for limited and simulated zero visibility situations.
10. Reel and guideline use.
11. Air-sharing scenarios to include breath-hold management for air-sharing for at least 200 feet/60 meters
12. Demonstrate effective valve-management by switching regulators, shutting down a valve and returning the valve to the open position.
13. Demonstrate water tight integrity of the unit by performing a vacuum test
14. Demonstrate availability of rebreather supply gas through the use of a flow check.
15. Demonstrate the capacity to efficiently supply gas to an out of air diver.
16. Demonstrate the ability to efficiently manage gas addition.

3-522 pSCR 2 Rebreather Diver

Purpose

The UTD Rebreather 2 course is designed to further educate individuals in the use of pSCR (RB80-style) rebreather technology as it applies to decompression and mixtures other than air, make divers proficient in the use of semi-closed circuit technologies while diving gas mixtures other than air, and allow divers to gain practical experience with their rebreather while learning to apply its use to their extended range activities. Emphasis here is placed on essential concepts such as rebreather theory, gas mixture/management, control of exposures to oxygen, and hypercapnia. However, the course is heavily experience based and deals most specifically with the practical implications of rebreather diving.

Prerequisites

10. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
11. Must be a minimum age of 21 years of age.
12. Must be a UTD Rebreather 1 or equivalent and UTD Trimix 1 or equivalent.
13. Must have completed the online UTD RB2 class and test
14. Must have at least 200 scuba dives beyond open water qualification. Fifty (50) must have been in doubles, with twenty-five (25) involving stage decompression.
15. Must have one hundred (100) hours on a semi closed rebreather.
16. Must be able to swim a distance of at least 60 feet/18 meters on a breath hold.
17. Must be able to swim at least 400 yards/365 meters in less than 14 minutes without stopping.

Course Limits

7. General Training Limits as outlined in Section 1.4
8. Student to Instructor ratio is not to exceed 3:1 during any in water training
9. Maximum depth 250 ft/75 m
10. No overhead environment diving

Course Content

The UTD pSCR Rebreather 2 course is normally conducted over a 5-day period, and cumulatively involves a minimum of 40 hours of instruction designed to ensure a working knowledge of rebreather diving, including failure situations, and life-saving solutions. Topics also include a review of decompression diving, oxygen tolerance, and other operational considerations central to the exploration of extended range environments with a rebreather.

Course requirements include a minimum of twelve (12) hours of academics and at least eight (8) open water dives, of which at least four (4) will be conducted in excess of 100 feet/30 meters and will include stage decompression. At least two dives will be conducted below 150 feet/48 meters utilizing Trimix.

Online Classroom Courses & Text

1. Online Classroom Materials – PSCR 2
2. Rebreather Planning Sheets
3. Technical DVD is recommended

Academic Topics

A. Purpose
- Risk
- Benefit
- Advantages
- Disadvantages

B. Common Components of the pSCR (RB80-style) and how they function
- Mouthpiece & hoses
- Counter lung
- CO2 Canister & Chemical Removal by the scrubber
- Gas Addition System
- Gas Management & Information System

C. Inherent Risks of Rebreathers
- Hypoxia
- Hyperoxia
- Hypercapnia
- Hyperventilation

D. Introduction to the pSCR (RB80-style) Rebreather
- pSCR (RB80-style) Design
- Gas Circulation During Inhalation
- Gas Circulation During Exhalation
- Gas Changes
- Passive Gas Addition
- Diving Logistics

E. pSCR (RB80-style) Rebreather Alarms and Warnings
- Intrusion
- Failure Susceptibility
- Information Content
- Verification
- Physiological Monitoring

F. The Physics Behind a pSCR (RB80-style) Rebreather
- O2 Toxicity
- Decompression
- Theory & Review
- Rebreather vs. Open Circuit
- Oxygen Consumption (RMV)

G. Configuration
- DIR Foundation
- pSCR (RB80-style) Configuration
- Rebreather configured DIR style

H. pSCR (RB80-style) Rebreather Physical Design
- Components, Functions, Failures, Problem Recognition & Alarms, Problem Solving
- Mouthpiece, Double hoses, Check Valves & Bailout regulators
- CO2 Canister & Scrubber bed
- Inner Bellows & Overpressure Dump Valve
- Counter Lung Actuated Gas Addition Regulators

I. Problem Recognition & Management
- Scrubber Flooded leading to Hypercapnia
- CO2 Absorbent Failures leading to Hypercapnia
- Check Valve Failure leading to Hypercapnia
- Addition Failures leading Hypoxia
- Mechanical Failure leading to Hyperoxia

- Gas supply failures
- Diving Conditions leading to Hypoxia
- Bailout Scenarios
- Physiological Monitoring

J. The Importance of Instinctive Physiological Monitoring
- Pre Dive Planning & Preparation
- Gas Duration
- Gas Choice
- CO2 Absorbent Management
- Pre-dive checks

K. Pre-Dive Planning
- Gas Choice
- Gas Duration
- Gas management scenarios
- Decompression Procedures
- CO2 Absorbent Management & Duration
- Pre-dive checks and Vacuum Checks
- Open Circuit Bailouts

L. Diving the pSCR (RB80-style) Rebreather
- Initial in-water verification
- Descents/Ascents on OC
- Flow-checks
- Buoyancy Control
- Breathing Characteristics
- Monitoring the unit & Alarms
- Flooding & Failures
- Monitoring the gas
- Loop Purging with mask
- Gas Switches

M. Post Dive Procedures
- Rinse hoses between dives on same day
- Rinse unit after 1 day's use
- Disinfect and dry hoses and unit after 5 day's use

N. Need for continuing Education and skill reinforcement

Land Drills & Topics

1. Flow-checks
2. Manifold Failures
3. Gas-addition Failures
4. Air-sharing
5. Rebreather functions

Required Dive Skills & Drills

20. All skills and drills as outlined in the General Diving Skills, Section 1.5.
21. Access and review diving limitations.
22. Procedures for gas failures; including valve manipulation, air-sharing, and regulator switching as appropriate.
23. Demonstrate the capacity to recognize, evaluate and correct floods, and then discharge excess water.
24. Demonstrate the effective diagnosis and correct response to simulated rebreather problems.
25. Air-sharing scenarios to include breath-hold management for air-sharing for at least 200 feet/60 meters.
26. Demonstrate effective valve-management by switching regulators, shutting down a valve and returning the valve to the open position.
27. Demonstrate a clean and efficient removal of stage and/or decompression bottles while hovering horizontal.
28. Demonstrate the ability to recognize the presence of elevated CO2 levels.
29. Demonstrate the ability to comfortably switch gases using the gas addition manifold while maintaining good trim and neutral buoyancy.
30. Demonstrate proficiency in safe diving procedures, including assembly, vacuum and pressure test, pre-dive preparations, pre dive vacuum test, flow check, in-water activity and post dive assessment and break down.
31. Comfortably swim for at least 50' without a mask while diving breathing on Closed Circuit.
32. Demonstrate the ability to safely switch between Closed Circuit and Open Circuit I.E. Flow Check.
33. Efficiently and comfortably demonstrate how to donate air to an out of air diver in multiple air sharing episodes from Closed Circuit with one or more experiences to include a distance of at least 30’/9m.
34. Be able to comfortably demonstrate use, manipulation and failures of the gas addition system.
35. Demonstrate awareness of the working of a team member’s Rebreather and a concern for safety, responding quickly to visual cues and diver partner needs if the RB should fail.
36. Demonstrate proficiency with dive rescue techniques, including effective management of the following situations: assisting a panic stricken diver, a convulsing diver and an unconscious diver. Demonstrate reasonable proficiency with use of the Rebreather during ascents, descents and diving.

Equipment Requirements

1. All equipment noted in paragraph 3.0
2. Two 40cft/1120 decompression bottles

3-530 pSCR Gold Diver

Removes all depth, gas, and bottle restrictions.

Prerequisites:

1. UTD pSCR 2 (no equivalents)
2. 20 experience dives in Trimix 2/pSCR 2 range
3. In-water session(s) to cover
   - 120’/36m gas switching protocols
   - 70'/21m gas switch protocols
   - 20'/6m gas switch protocols
   - Multiple O2 Cycles

Student Skills Demonstration

1. Demonstrate ability to safely deploy a decompression bottle while maintaining buoyancy within a 3'/1m +- of target depth and within 1 minute.
2. Demonstrate ability to safely stow a decompression bottle while maintaining buoyancy within +- 3'/1m of target depth and within 1 minute.
3. Demonstrate ability to pass and receivce a deco bottle while maintaining buoyancy within +- 3'/1m of target depth and within 1 minute.

3-590 The UTD Expedition Diver

The UTD Expedition Diver is a recognition offered to a UTD Member who has reached the highest level certification issued by UTD. The Expedition Diver Card is earned by a diver who has demonstrated the ability to explore deeply into the world's oceans, wrecks, and caves and has made a life-long commitment to the training and discipline needed for these extreme dives.

A candidate for the UTD Expedition card must complete the following UTD courses (equivalents are not permitted unless specifically noted):

4. UTD Tech 2 or equivalent
5. UTD Trimix 2
6. UTD Wreck 2 or UTD Cave 2
7. UTD Scooter 2
8. UTD mCCR 2 or pSCR 2
9. Rescue and Emergency Procedures or equivalent
10. Technical Gas Blender and

Once these classes have been completed the candidate may submit an application to the UTD Board of Advisors for Expedition status. Required documents include:

11. Copies of relevant certification cards
12. Proof of current UTD Membership
13. Letters from two UTD Instructors recommending Expedition Diver status
14. A letter from the UTD Training Director recommending Expedition Diver status
15. A letter to the UTD Board or Advisors requesting Expedition Diver status
16. A complete bio and resume

The UTD Board of Advisors will grant Expedition Diver status on a case by case basis. If status is denied, the candidate may reapply after a period of one year from the date of the denial.

3-601 UTD Divemaster

Purpose

UTD's Divemaster course is a leadership certification program designed to train UTD divers to organize and lead diving activities and assist on UTD classes. A UTD Divemaster may work as as a Divemaster and/or an assistant to a UTD Instructor on any level class that the DM is rated for. A Divemaster may request a restriction to DM at a lower level than his/her highest level of training. All UTD Instructors have Divemaster status.

The core of the UTD Divemaster program is leadership. The DM Candidate will become comfortable coordinating classes and events, assisting in academic, land drills, and in-water training.

During the course of the UTD Divemaster training, the DM candidate will be performing skills to a demonstration level, similar to that of an instructor. *It's important to note that the goal of the DM program is not to teach a DM candidate to dive, but to teach a DM candidate to teach and lead.*

Prerequisites

Must meet UTD General Course Prerequisites as outlined in Section 1.6.

1. Must be a minimum age of 21 years.
2. Medical exam and approval for diving by a licensed physician.
3. Must be certified, at a minimum, as a UTD Rec 2 diver or equivalent.
4. Must be certified as a UTD Rescue Diver or equivalent.
5. Must be certified in First Aid/CPR/AED/O2 from a nationally recognized training agency.
6. Must have a minimum of 200 dives beyond open water qualification.
7. All participants must be able to swim at least 300 yards in 14 min or must be able to swim at least 600 yards in 18 minutes with mask & fins.
8. All participants must be able to swim a distance of at least 50' (15m) on a breath hold or demonstrate an air share swim where the OOA diver swims at least 50' (15m) to the donating diver.
9. All participants must surface-tow a diver in full equipment, in the environment they will be diving,for 10 minutes.
10. All participants must demonstrate a rescue of a diver simulating oxygen toxicity.

Duration

The UTD Divemaster course is normally conducted over two (2) 3-day periods. It involves a minimum of 48 contact hours of instruction, encompassing both classroom and in-water work. The course may be spread out to meet the needs of the student and instructor.

Course Limits

1. General Training Limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 4:1 during land drill, surface exercises and Experience Dives but 4:1 during any direct in-water critical skills training.
3. Maximum depth only limited by the certification level of the DM candidate.
4. Standard gases mixes are to used for every dive.

Course Content

The UTD Divemaster course is normally conducted over a minimum of 6 days, and cumulatively involves a minimum of 48 hours of instruction, designed to provide a working knowledge of UTD's leadership techniques and protocols.

Minimum course requirements include twenty-four (24) hours of academics and eighteen (18) dives, four (4) of which will be critical skill dives and the balance will be experience dives.

Initial dives will be conducted in shallow water to test diver ability and to fill in any deficits in skill levels. The experience dives are to be dives at any depth the DM candidate is rated for, with or without stage decompression. During the experience dives, the DM candidate is expected to coordinate, lead, assist under supervision of the instructor.

Online Classroom Courses & Text

1. Online Classroom Materials – DiveMaster
2. DiveMaster Worksheet
3. Essentials, Essentials of Tech, and Technical DVD's are recommended

Academic Topics

1. Physics
2. UTD/DIR/Hogarthian Principles
3. Teaching Fundamentals and Presentation Principles
4. Developing Lectures.
5. Divemaster duties and legal responsibilities
6. Pressure and Gas laws review
7. Equations relevant for the planning, mixing, and use of enriched air
8. Physiology – Hypoxia, Hyperoxia
9. Oxygen toxicity – CNS, Pulmonary toxicity
10. Tracking multi-level, multi-dive, and multi-day exposures
11. Inert gas narcosis
12. Carbon dioxide toxicity
13. Introduction to Helitrox
14. Disadvantages of deep air
15. Double tanks, Decompression and/or Stage bottle
16. BC/harness
17. Regulators, depth gauges, pressure gauges, and hose routing
18. Manifolds
19. Reels and line protocols
20. Lift bag/surface marker buoys and spools
21. Bottom timers and time keeping devices
22. Exposure suit appropriate for the environment
23. Decompression illness
24. Accelerated and "on the fly" decompression
25. Decompression practices on back-gas and 100% oxygen
26. Generic tables, computers, and custom tables
27. Dive planning
28. Team planning
29. Gas matching
30. Emergency procedures
31. Analyzing and labeling gas supplies
32. Dry runs and in-water coursework

33. Practice Presentations and Equipment Lectures

Land Drills & Topics

1. Dive team order and protocols
2. Shore and boat diving protocols
3. Emergency planning and procedures
4. Decompression emergencies
5. Search and rescue
6. Accident avoidance, response, and management
7. Pre dive drills
8. Use of safety spools, reels, lift bags, and rescue floatation equipment
9. Basic navigation skills
10. Night diving skills

Required Dive Skills & Drills

1. All skills and drills as outlined in the general diving skills as outlined in Section 1.5
2. Lift bag/surface marker buoy deployment
3. Buoyancy and trim
4. Able to comfortably demonstrate at least two propulsion techniques appropriate for delicate and/or silty environments
5. Use of touch contact for limited and simulated zero visibility situations
6. Reel and guideline use
7. Equipment familiarization
8. Air-sharing scenarios to include a horizontal swim for at least 200 feet/60 meters
9. Air-sharing ascent with or without decompression simulated decompression obligations.
10. Buddy breathing (one second stage regulator shared by two people) for at least 200 feet//60 meters.
11. Bring a maskless diver to the surface.
12. Be brought to the surface without a mask.
13. Demonstrate effective valve-management by switching regulators, shutting down a valve in less than 15 seconds and returning the valve to the open position again in less than 15 seconds and/or completing a complete valve-drill in 2 minutes.
14. Scuba gear remove and replace at surface.
15. Loss of ditchable weights (if appropriate).
16. Perform at least two (2) pre-dive briefings under supervision of a UTD Instructor.
17. Guide a group of certified divers on at least two day dives (at least one must be a boat dive.
18. Guide a group of certified divers on at least one night dive.
19. Assist in a minimum of three (3) inwater class sessions with a UTD instructor.
20. Shoot video in a minimum of two (2) inwater class sessions with a UTD instructor.
21. Bring an unconsciousness diver to the surface, tow while performing rescue breaths, extricate the diver from the water, begin emergency response.
22. Bring a toxing diver to the surface.
23. Assist a UTD Instructor on one complete UTD class.

3-605 IDC Prep

Purpose

The “IDC Prep” class is workshop-based class to prepare UTD Instructor Candidates for the in-water portion of an Instructor Development Course. IDC Prep is not a pass-fail class, but is specifically designed for instructor candidates who have not taken a UTD class, or any candidate who wants to be sure their skills are in order prior to an IDC. In IDC Prep, instructor candidates will work on personal and team skills to demonstration quality.

IDC Prep generally takes place in 20-30’ / 6-10m of open water. It is a personal skills class that prepares you to demonstrate all the foundational UTD skills (as noted below). All skills are done to demonstration quality in preparation to teach a UTD class.

IDC Prep may be taught at a recreational or technical level and can be taught by any UTD instructor to their level.

Prerequisites

9. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
10. Must be a minimum age of 21 years of age.
11. UTD Rec 2 (Nitrox) or equivalent.
12. Minimum of 100 dives beyond open water certification, 75 of which must be non-training dives.
13. All participants must be able to swim at least 300 yards/285 meters in 12 minutes.
14. All participants must be able to swim a distance of at least 50'/15m on a breath hold.
15. All participants must demonstrate the rescue of a diver simulating oxygen toxicity.

Course Limits

1. General training limits as outlined in Section 1.4
2. Student to Instructor ratio is not to exceed 6:1 during any in-water training and will be adjust down according to conditions and visibility
3. Maximum depth 60 feet/18 meters
4. Standard gas is Air or Nitrox 32
5. Must stay within no-decompression limits
6. No overhead environment diving

Course Content

IDC Prep is normally conducted over 2 to 3-day period combining lecture, in-water sessions and video debriefings with a minimum of 20 hours of instruction. The course focuses on the foundational skills required by all UTD instructor candidates.

Course requirements include a minimum of eight hours of academics/dry runs and four in water sessions.

Online Classroom Courses & Text

1. Online Classroom Materials – IDC Prep
2. Essentials of Tech Worksheet
3. Essentials of Tech DVD is recommended

Academic Topics

1. UTD organization
2. Teaching Methodology
3. Buoyancy Control and Trim
4. Proper Weighting
5. Streamlining and Equipment Configuration
6. Propulsion Techniques
7. Air Sharing and Valve Drill procedures
8. Situational Awareness
9. Communication
10. Breathing Gas Overview
11. Dive Planning and Gas Management

Land Drills & Topics

1. Propulsion techniques
2. Basic-6
3. S-Drills
4. Valve Drills
5. Pre-Dive Drills
6. Use of safety spools and surface marker buoy
7. Deco bottle use (Deploy and Stow)
8. Basic navigation skills

In Water Skills & Drills

Learn how to perform:

1. Demonstration quality buoyancy and trim
2. Demonstration quality propulsion – Frog, Mod Frog, Mod Flutter, Back, Helicopter
3. Demonstration quality Basic-6
4. Demonstration quality S-Drills
5. Demonstration quality Valve Drills
6. Demonstration quality SMB Deployment
7. Demonstration quality Deco Bottle Deploy/Stow
8. Demonstration quality Toxing Diver rescue.

4.0 UTD Instructor Standards and Procedures

Active Status UTD Instructor

Only active status UTD Instructors may teach UTD certification classes.

Maintaining Active Status

To maintain an active status UTD instructor rating instructors must:

1. Be a current UTD Instructor Member and maintain a current mailing address with UTD HQ.
2. Complete and submit a current UTD Instructor agreement form.
3. Own current versions of all relevant UTD Instructor Manuals and current UTD Standards and Procedures.
4. Meet the Standards as required to teach a specific Training Category and/or Training Level.
5. Log 25 non-training dives in the previous two years at highest level of qualification.
6. Complete at least one of the following training obligations per year:
    - Conduct and act as the lead instructor in one complete UTD course
    - Attend, serve on staff, or lecture at one UTD IDC
    - Serve as an assistant, audit, or participate in three complete UTD diving courses.
7. Qualified as a First Aid/CPR/AED/O2 provider from a national agency with past two years.
8. Instructional Insurance: Instructors residing in the United States of America and/or who teach U.S. citizens while maintaining American citizenship are required to have Instructional Liability Insurance. Minimum coverage: $1,000,000.
9. Maintain a good state of mental and physical fitness.

With each yearly renewal, Active Status Instructors must furnish UTD Headquarters with proof of compliance with respect to items 1, 2, 7, 8, and 9.

Instructor Re-Qualification

Each UTD instructor must re-qualify every three years. An instructor can be re-qualified six months before or six months after the expiration of their qualification period by participating in either a UTD IDC or co-teaching with a UTD Instructor with internship ability, or completing an academic review with a UTD Instructor Trainer. If the instructor is re-qualifying after three years but within the “six-month-after” period, that instructor may not teach a UTD course until re-qualified.

The re-qualification process includes an academic review, an evaluation of in-water skills, and/or exposure to all new training content and systems. UTD instructors may have to re-qualify following an official complaint being filed against them – these instructors must apply for renewal directly to the Board of Advisors. Instructors whose membership has expired and who do not wish to renew as instructors will become inactive status instructors.

Active Status UTD Instructor with Internship Ability

1. Must be an Active instructor
2. Must have been a UTD instructor for 1 year or more or have 3 years instructing experience.
3. Must be appointed by UTD HQ
4. Must teach a minimum of five (5) classes or ten (10) students per year
5. Must attend and serve on staff at one (1) UTD IDC every three years

Instructor Categories and Prerequisites

Academic Instructor
UTD Academic Instructors may teach the academic programs of any classes they are approved to teach. This may include recreational, technical, trimix, overhead, and specialty classes. In addition, UTD Academic Instructors may be approved to teach complete non-water classes such as Technical Gas Blender and Cylinder and Valve Technician. All Academic Instructors must participate in an IDC specifically for the classes to be taught.

Zuba Instructor
The prerequisites to become an Zuba Instructor are proof of 125 non-training dives, UTD Rec 2, or Essentials of Rec and Nitrox, or equivalent. A Zuba Instructor must be trained in Z-System and can teach confined and open water Zuba.

Foundational Instructor
The prerequisites to become a Foundational Instructor are Divemaster with any recognized training agency, proof of 250 non training dives and at least Essentials of Tech and UTD Rec 2 or equivalents. A Foundational Instructor can teach UTD Zuba and Open Water courses, in addition to Essentials of Recreational, Essentials of Tech, Essentials of Overhead, Rec 1, 2, and/or specialties, Divemaster and/or other classes as designated by the UTD Training Advisory Board during evaluation. With the exception of Rec 2, the instructor must be certified one level higher than the classes he is certified to teach. If a Foundational Instructor wishes to teach Rec 3, he/she must meet the above criteria in addition to being certified at UTD Tech 1 or equivalent. Foundational Instructors without at least one year prior teaching experience with a recognized Scuba training agency may only teach Open Water, Essentials of Rec/Essentials of Rec Side Mount, Nitrox, Rescue, and Dry Suit for their first year.

Side Mount Instructor
UTD Instructors can teach at their existing level in Side Mount provided they have taken the UTD Side Mount IDC and have a minimum of 25 post-training side mount dives in the UTD Z-System Side Mount configuration at the level they wish to teach.

Technical Instructor
The prerequisites to become a Technical Instructor are UTD Foundational Instructor, a minimum of 2 years teaching experience, UTD Tech 2 or Tech Gold or must have interned UTD Tech 1 or Tech 2, proof of 500 non-training dives, and proof of at least 75 dives with staged decompression at depths below 130'/39m. A Technical Instructor can teach UTD Foundational Module Courses, in addition they can teach Tech 1, Tech 2 and Tech Gold (2 bottle endorsement) and Overhead Protocols or as designated by the UTD Training Advisory Board during evaluation. In order to teach Overhead Protocols, the Instructor Candidate must be certified at UTD Cave Diver or Wreck 1, or equivalent.

Trimix Instructor
The prerequisites to become a Trimix Instructor are UTD Technical Instructor, a minimum of 5 years teaching experience, UTD Trimix 2 or Trimix Gold or must have interned UTD Trimix 1 or Tech 2, proof of 1000 non-training dives and proof of at least 75 dives at depths below 200'/ 60m, using multiple deco bottles. A Trimix Instructor can teach UTD Technical Courses, in addition they can teach Trimix 1, Trimix 2 and Trimix Gold or as designated by the UTD Instructor Training Advisory Board during evaluation.

Overhead Instructor
The prerequisites to become an Overhead Instructor are UTD Foundational Instructor, a minimum of 3 years teaching experience, UTD Cave Diver or Wreck 2 or must have interned UTD Cave 1/2 or Wreck 1/2, and proof of 1000 non-training dives. For Cave, proof of at least 125 non-training cave dives. For Wreck, proof of at least 125 non-training wreck penetration dives. An Overhead Instructor can teach UTD Foundational Courses, in addition they can teach Overhead Protocols, Cave 1, 2, 3 and Wreck Penetration 1, 2, 3 or as designated by the UTD Instructor Training Advisory Board during evaluation.

Rebreather Instructor
The prerequisites to become a UTD Rebreather Instructor are UTD Foundational Instructor, a minimum of 3 years teaching experience, UTD mCCR 2 or pSCR 2 or must have interned UTD mCCR or pSCR, proof of 1000 non-training dives, proof of 100 hours experience in the rebreather category of choice and at least UTD Tech 2 or equivalent. A Rebreather Instructor can teach Essentials of Rebreather Diving, pSCR 1, 2, mCCR 1, 2, 3 or as designated by the UTD Training Advisory Board. Rebreather instructors must be current on an MX Series rebreather, meaning 25 hours in the last 6 months, and must own and use an approved MX Series rebreather during class.

Instructor Prerequisites to teach UTD Specialties

In order to teach:	You must be at least a:
Scooter 1	Foundational Instructor
Scooter 2	Technical Instructor
Ratio Deco	Trimix Instructor
Nitrox Diver	Open Water Instructor
Rescue Diver	Open Water Instructor
Essentials of Tech	Foundational Instructor
Essentials of Overhead	Foundational Instructor
Scubatics Competition Diver	Foundational Instructor
UTD Divemaster	Foundational Instructor

Specific Prerequisites for Overhead Protocols Instructors
UTD Tech 2 Instructor or higher, and UTD Wreck Penetration 1 or Cave Diver or equivalent, and participate in or intern a minimum of one UTD Overhead Protocols class with an Overhead Instructor with Internship Ability.

Specific Prerequisites and Procedures for UTD Academic Instructors
UTD Academic Instructor Candidates must participate in an IDC specifically designed by the UTD Training Department. This IDC will address the classes the candidate intends to teach. There are no prerequisites to enter a UTD Academic-only IDC.

Instructor Level Classes

4-501 Academic Instructor
4-605 Zuba Instructor
4-610 OW/Foundational Instructor
4-615 Side Mount Instructor
4-620 Tech Instructor
4-630 Trimix Instructor
4-640 Cave Instructor
4-650 Wreck Instructor
4-660 Side Mount Instructor
4-670 pSCR Instructor
4-680 mCCR Instructor
4-710 Foundational IT
4-720 Tech IT
4-730 Trimix IT
4-740 Cave IT
4-750 Wreck IT
4-760 Side Mount IT
4-770 pSCR IT
4-780 mCCR IT

4.1 Instructor Candidate Training Procedures

General Description

UTD's instructor training curriculum is designed around a common training and diving platform. This means that fundamental training concepts and core skills learned in different UTD classes will mirror each other even though they may have been instilled in classes that are geared toward different environments. Therefore, all UTD instructors must first be accepted into and then satisfactorily complete the Foundational Instructor Development Course (IDC) / crossover. The Foundational IDC is specifically designed to develop the core UTD philosophies, teaching principles and in-water skills.

UTD Instructor candidates may be approved to teach to a maximum of one level lower than the highest level at which they are dive certified and experienced.

Every Foundational IDC candidate must be able to perform or demonstrate:

1. At least 2 prepared classroom presentations
2. At least 1 impromptu classroom presentation
3. At least 3 impromptu simulated training dives
4. At least 1 simulated in water emergency / rescue scenario
5. Any diving skill at a demonstration level when asked by the IDC Staff
6. A safe, effective, and personable approach to teaching
7. An understanding of UTD standards and procedures
8. A respect for the conservation of the environment
9. Proper in-water positioning to provide appropriate care for, and control, of students
10. An awareness of each student's ability level
11. Full capacity with all topics contained within UTD diver training
12. Local laws and regulations affecting scuba diving activities

Equipment Requirements

All UTD classes teach a consistent gear configuration. Each instructor candidate must be completely familiar and comfortable with the gear configurations appropriate to the classes they will be teaching, i.e. back mount singles, back mount doubles, side mount singles, side mount doubles, stages, deco bottles, etc.

IDC Prerequisites

1. Must meet UTD General Course Prerequisites as outlined in Section 1.6.
2. Must be a minimum age of 19 years of age.
3. Must be able to swim at least 425 yards/ 400 meters in less than 14 minutes without stopping.
4. Must be able to swim a distance of at least 70 feet/21 meters on a breath hold.
5. Divemaster certification with a recognized certification agency.
6. Rescue class, or equivalent
7. First Aid, CPR, and AED/O2 within past two years
8. UTD Rec 2 and UTD Essentials of Rec or equivalent
9. Complete the UTD IDC Registration Module
10. Smoking is not permitted during any training activity.
11. Show results from any completed PFO test. PFO test are recommended but not mandated.

12. If a PFO exists, it must be repaired and the instructor cleared by a physician for Technical Diving.

Foundational Modules

The UTD Instructor Development/Crossover Course (IDC/Crossover) is a modular program. The foundational modules are:

- Registration
- Class Preparation
- Academic
- In-Water
- Evaluation

All five modules are mandatory. The first three, Registration, Class Preparation, and Academic are home study modules and are guided by UTD Headquarters Training Staff. These first three modules must be completed prior to attending the In-Water Module. The In-Water module may be taught by any UTD Certified Instructor Trainer. The final module, Evaluation, is completed by the UTD Training Advisory Board.

On completion of the Foundational In-Water Module, the Instructor Trainer has two options:

1. Submit the candidate to the Training Advisory Board for evaluation.
2. Not submit the candidate to the Training Advisory Board, but recommend a path to completion. This may include, but is not limited to, internships, participation in additional IDC's, etc.

If the candidate IS submitted for evaluation by the Training Advisory Board, the Board has four options for the candidate:

1. Certified as a UTD Foundational Instructor
2. Certified as a Foundational Instructor but must co-teach prior to final approval
3. Not certified and must submit new evaluation video to the Board
4. Not certified and must intern then submit new evaluation video to the Board

Candidates who are certified by the Board my be asked to teach a progression of classes, i.e. 'must teach two Essentials of Rec prior to teaching Essentials of Tech,' or 'must teach Rec 2 prior to teaching Rec 3,' etc.

Category Modules

Category Modules are optional and may be attended only after completion of the Foundational In-Water Module. Category Modules are taught by any UTD Instructor Trainer certified to teach the Category. Category Modules include:

- Side Mount Module
- Technical Module
- Trimix Module
- Rebreather Module
- Overhead Module (Cave or Wreck)

Internships and Co-Teaching

Candidates who are asked to intern must participate in a complete UTD class with a UTD Instructor with Internship Ability. Those instructors are noted on the UTD website.

Candidates who are asked to co-teach must participate in a complete UTD class with any UTD Instructor.

Evaluation Modules

Instructor Candidates will be evaluated by the UTD Training Advisory Board. Following the In-Water module, the Instructor Trainer will provide the Board with evaluation video of the candidate performing a lecture, a dry run, and an in-water demonstration, along with the candidate's evaluation forms. The candidate will be informed that the evaluation process takes up to 10 days. During that time, the Board will review the videos and the forms, discuss the candidate, then make a decision as noted above. The candidate will be informed of the outcome by his/her Instructor Trainer.

This same procedure will be followed for all instructor category modules.

4.2 Instructor Development Course

Program Limits

General Training Limits as outlined in Section 1.4.

Registration Module
- Interview with UTD Training Department
- Purchase IDC materials which includes student materials, instructor materials, first year membership fee
- Submit Student Registration, Waiver, Medical History, Nondisclosure Agreement

Online Classroom and Preparation Module
- Read Standards and Procedures
- Read and study Playbook
- Read Instructor Operations Manual
- Complete online program for each class you expect to teach
- Complete the test for each class you expect to teach
- Complete the IDC powerpoint presentation and test
- Submit the Statement of Completion for the IDC powerpoint presentation

Academic Module – 12-18 hours
May be completed through Online IDC Academics
- UTD Ethos
- UTD Teaching Protocols
- UTD Standards and Procedures
- UTD Playbook
- UTD Classroom Powerpoint presentations
- UTD Instructor Development presentation
- UTD Instructor Operations Manual

Foundational Module – 4 to 5 days
Required Skills
- Understanding of Ratio Deco
- Classroom presentations (assigned topics)
- Dry run presentations (assigned topics)
- Impromptu presentations
- Confined water: Recreational through Essentials of Tech skills
- Confined water: Critical skills, instructor positioning, team re-positioning
- Confined water: Failures, simulations, critical skills, rescue skills, specialties
- Open water: all skills
- Surface and video debriefs

Side Mount Module – 1 to 2 Days
In water skills and teaching techniques for side mount diving
- Classroom presentations
- Dry run presentations
- In-water presentations
- Video debrief

Technical Module – 4 to 5 Days
In water skills and teaching techniques for UTD Tech 1, Tech 2 and Tech Gold

- Classroom presentations
- Dry run presentations
- In-water presentations
- Video debrief

Trimix Module – 3 to 4 Days
In water skills and teaching techniques for UTD Trimix 1 and Trimix 2

- Classroom presentations
- Dry run presentations
- In-water presentations
- Video debrief

Rebreather Module – 4 to 5 Days
In water skills and teaching techniques for mCCR and/or pSCR

- Classroom presentations
- Dry run presentations
- In-water presentations
- Video debrief

Overhead Module – 4 to 5 Days
In water skills and teaching techniques for UTD Overhead Protocols class, and/or Cave 1, Cave 2, Wreck 1, Wreck 2

- Classroom presentations
- Dry run presentations
- In-water presentations
- Video debrief

UTD Specialties – covered during the Core modules:

- Scooter 1
- Scooter 2
- Ratio Deco
- Nitrox Diver
- Rescue Diver
- Technical Gas Blender
- Scubatics Competition Diver
- UTD Divemaster

UTD Gas Blender and Cylinder and Valve Technician –

Active status UTD Instructors can cross over to Gas Blender Instructor by:

- Completing the UTD online Gas Blender class, AND
- Providing proof of current Gas Blending certification from a nationally recognized agency, or
- Providing proof of a minimum of one year professional experience blending nitrox and trimix (ie. in a dive shop or similar environment), or
- Providing proof, via a written statement, of at least two years blending nitrox and trimix in a non-professional environment, or
- Completing the UTD Gas Blender IDC.

Active status UTD Instructors can cross over to Cylinder and Valve Technician Instructor by:

- Completing the UTD online Cylinder and Valve Technician class, AND

- Providing proof of current Cylinder and Valve inspection certification from a nationally recognized agency, or
- Providing proof of a minimum of one year professional experience performing visual inspections and valve service (ie in a dive shop or similar environment), or
- Completing the UTD Cylinder and Valve Technician IDC.

4.3 Instructor Trainers

Definitions

- Training Director – Director of all UTD training, appointed by UTD HQ.
- Training Advisory Board (TAB) – The overseeing council responsible for all matters in training including standards and producers revisions, technique and protocol changes, and reviewing and approving all instructor candidates. This 5 member board is appointed by UTD HQ and consists of the UTD Training Directors and/or Instructor Trainers..
- Academic Instructor Trainer – Teaches the academic modules of the Instructor Trainer Workshop. Approved by TAB.
- Instructor Trainer – Teaches the in-water modules of the Instructor Trainer Workshop. Trained by HQ and approved by TAB.
- Instructor – Teaches and certifies students in both the academic and the in-water portions of any UTD class within their appointed categories. Trained by HQ and an Instructor Trainer and approved by TAB.
- Academic Instructor – Teaches and certifies students in the academic portions of a class (or academic-only classes such as Technical Gas Blender) within their appointed categories. Trained by Academic Instructor Trainer and approved by TAB.
- Instructor Categories: Foundational, Side Mount, Technical, Trimix, Rebreather, Cave, Wreck, Academic Only
-

Foundational and Side Mount Instructor Trainer Prerequisites

- Must be an active status UTD Instructor for at least one year.
- Must have taught a minimum of 10 UTD classes.
- Must be UTD Tech Gold and UTD Cave 1 or equivalents.
- Must attend Instructor Trainer Workshop led by HQ, may be held concurrently with an IDC.
- Must intern a minimum of one (1) IDC held by a UTD HQ Instructor Trainer.
- May not be actively teaching for other Scuba certification agencies.

Tech, Trimix, RB, and OH Category Instructor Trainer Prerequisites

- Must be a Foundational IT and have taught a minimum of two Foundational In-Water IDC modules
- Must have taught a minimum of 10 UTD classes in the Category
- Must intern at least one Category IDC with an HQ Instructor Trainer

Instructor Trainer Roles

UTD Instructor Trainers are qualified to teach only the in-water module of a UTD IDC. Prior to an in-water module, all UTD instructor candidates must have completed the IDC Registration Module, the IDC Class Preparation Module, and the IDC Academic Module. The academic module may be completed online or may be taught by a UTD Academic Instructor Trainer (appointed by HQ).

On completion of an in-water module taught by an UTD Instructor Trainer, video of instructor candidates' in-water skills, lectures, and dry runs, along with the IT's evaluations, will be presented to the UTD Training Advisory Board. The Board will make the final decision as to the instructor candidates' path to becoming a UTD Instructor. In no case will an instructor candidate be approved as a UTD Instructor without approval of the Training Advisory Board.

Appendix:

Overview of UTD Depth and Gas Limits per Class

UTD International Course	Depth limits (ft/ m)	Backgas (O2/ Helium) limits	Deco (O2) limits	Number of Deco Bottles	Max Deco Time	Number of Stage Bottles
Recreational Diver 1	60'/18m	21%	N/A	None	None	None
Essentials of Recreational Diving	60'/18m	None	N/A	None	None	None
Recreational Diver 2	100'/30m	32%	N/A	None	None	None
Recreational Diver 3	130'/39m	25/25	N/A	None	None	None
Essentials of Technical Diving	60'/18m	None	N/A	1*	None	or 1*
Technical Diver 1	130'/39m	25/25	100%	1	1 O2 cycle	None
Technical Diver 2	160'/48m	18/45	50 or 100%	1	30 min	1
Technical Diver Gold	160'/48m	18/45	50 and 100%	2	30 min	1
Trimix Diver 1	200'/60m	18/45	50 and 100%	2	60 min	None
Trimix Diver 2	250'/75m	15/55	35/25 & 50 & 100%	Multiple	90 min	Multiple
Trimix Diver Gold	Unlimited	All	All	Multiple	Unlimited	Multiple
Essentials of CCR Diving	60'/18m	32%	N/A	None	None	N/A
mCCR 1	130'/39m	25/25	N/A	1	None	N/A
mCCR 2	160'/48m	18/45	50 and 100%	2	30 min	N/A
mCCR 3	200'/60m	All	50 and 100%	3	90 min	N/A
pSCR 1	130'/39m	25/25	N/A	None	None	N/A
pSCR 2	200'/60m	15/55	50 and 100%	2	90 min	N/A
pSCR Gold	Unlimited	All	All	Multiple	Unlimited	Multiple
Wreck Penetration Diver 1	100'/30m	25/25	N/A	N/A	None	N/A
Wreck Penetration Diver 2	160'/48m	15/55	As Trained	Multiple	90 min	Multiple
Cave 1	100'/30m	32%	N/A	N/A	None	N/A
Cave 2	130'/39m	25/25	As Trained	Multiple	30 min	Multiple
Scooter 1	100'/30m	N/A	N/A	N/A	None	N/A
Scooter 2	160'/48m	N/A	As Trained	Multiple	As trained	Multiple
Ratio Deco	N/A	N/A	N/A	N/A	N/A	N/A
Nitrox Diver	100'/30m	32%	N/A	None	None	None
Scubatics Competition Diver	60'/18m	N/A	N/A	N/A	N/A	N/A
Rescue Diver	60'/18m	N/A	N/A	N/A	N/A	N/A

***** Essentials of Tech is not a decompression class, however, the students are introduced to the mechanics of handling one deco or stage bottle.

UTD Standard Gas Mixes

Bottom mixes have an MOD PPO2 of 1.4 ata.

Bottom mixes have an average PPO2 of 1.2 ata for the working depth.

Deco mixes have an MOD PPO2 of 1.6 ata.

Deco mixes have an average PPO2 of 1.2 ata (except for O2) averaged over the range the deco mix is used.

Equivalent Narcotic depth is 100’/30m or less based on a conservative formula of END=(1-HE)*ATA’s.

Bottom Mixes	**Working Depth**	**MOD**
Nitrox 32	0 – 100'/30m	111'/33m
Helitrox 25/25	100’/30m - 130’/ 39m	151’/46m
Helitrox 21/35	130’/39m - 160’/ 48m	190’/57m
Trimix 18/45	160’/51m - 200’/ 60m	220’/66m
Trimix 15/55	200’/63m - 240’/ 72m	275’/83m
Trimix 12/60	250’/75m - 300’/ 90m	352’/ 106m
Trimix 10/70	300’/93m - 400’/ 120m	429’/ 130m
Deco Mixes	**Max Depth**	
100% oxygen	20’/6m	
Nitrox 50	70’/21m	
Helitrox 35/25	120’/36m	
Helitrox 21/35	190’/57m	

UTD Extra-Curricular General Release of Liability and Covenant Not to Sue for Recreational, Technical and Overhead Environment SCUBA Diving

In consideration of permitting me, _____ certified as a Scuba Diver
(PARTICIPANT'S NAME)
by_____ and trained to a depth of _____feet/meters to participate in SCUBA
(CERTIFYING AGENCY) (MAXIMUM TRAINING DEPTH)
diving and related activities conducted by _____ through the facility
(DIVE LEADER'S NAME)
of _____ in the city of _____ in the County of
(DIVE BUSINESS NAME)
_____, and State of _____,beginning on the _____ day

of _____ , 20 _____ , I, for myself, my personal representatives, heirs and next of kin:

1. HEREBY acknowledge that SCUBA DIVING IS A POTENTIALLY DANGEROUS ACTIVITY and involves the risk of serious injury and/or death and/or property damage. I further acknowledge that diving with compressed air involves certain risks and injuries that can occur which require treatment in a recompression chamber or other facility which may require a great distance of travel. I understand that the activities in which I am participating may be conducted at a site that is remote, either by time or distance or both, from a recompression chamber or medical facilities. _____ (Initials)

2. HEREBY RELEASE, WAIVE, AND DISCHARGE the dive leader named above, UTD International, LLC (aka Unified Team Diving), and any of its officers, instructors, agents or employees (the Releasees) FROM ALL LIABILITY TO MYSELF, my personal representatives, assigns, heirs, and next of kin FOR ANY AND ALL LOSS OR DAMAGE, AND ANY CLAIM OR DEMANDS THEREFOR ON ACCOUNT OF INJURY TO MY PERSON OR PROPERTY OR RESULTING IN MY DEATH, NOW AND FOREVER, ARISING OUT OF OR RELATED TO MY PARTICIPATION IN SCUBA DIVING OR ANY RELATED ACTIVITIES, WHETHER CAUSED BY THE NEGLIGENCE OF THE RELEASEES OR OTHERWISE. _____ (Initials)

3. HEREBY ASSUME FULL RESPONSIBILITY FOR ANY RISK OF BODILY INJURY, DEATH OR PROPERTY DAMAGE, now and forever, arising out of OR RELATED TO MY PARTICIPATION IN SCUBA DIVING OR ANY RELATED ACTIVITIES, whether foreseen or unforeseen and whether caused by the negligence of the Releasees or otherwise. _____ (Initials)

4. HEREBY agree to INDEMNIFY and SAVE and HOLD HARMLESS the Releasees from any loss, liability, damage or cost any of them may incur, now and forever, arising out of OR RELATED TO MY PARTICIPATION IN SCUBA DIVING OR ANY RELATED ACTIVITIES, whether caused by the negligence of the Releasees or otherwise. _____ (Initials)

5. HEREBY acknowledge that INJURIES RECEIVED MAY BE COMPOUNDED OR INCREASED BY NEGLIGENT RESCUE OPERATIONS OR PROCEDURES OF THE RELEASEES and agree that this agreement and release extends to all acts of negligence by Releasees, INCLUDING NEGLIGENT RESCUE OPERATIONS. _____ (Initials)

6. HEREBY agree NOT to SUE or otherwise assert any claim against any of the Releasees for any injury or damage I may incur as a result of my participation in SCUBA diving or any related activities. I understand that if, notwithstanding my agreement not to sue, I bring any action against Releasees for any claim released pursuant to this agreement, the prevailing party in any such action shall be entitled to recover reasonable attorneys' fees and costs. _____ (Initials)

7. HEREBY ACKNOWLEDGE that the Release included in this agreement is intended to be as broad and inclusive as permitted by the laws of the Province or State in which the activities are conducted and that if any portion of this agreement and release is held invalid, the balance shall continue in full legal force and effect. _____ (Initials)

8. HEREBY ACKNOWLEDGE I have read this agreement, fully understand its terms, understand that I have given up substantial rights by signing it, am aware of its legal consequences, and have signed it freely and voluntarily without any inducement, assurance, or guarantee being made to me and intend my signature to be a complete and unconditional release of all liability to the greatest extent allowed by law. I understand that this agreement represents the entire agreement between the parties regarding the subject matter hereof and supersedes any prior or contemporaneous agreements. I understand that this agreement may not be orally modified and I am not relying on representations made by anyone other than those set forth in this agreement. _____ (Initials)

BY WAY OF MY VOLUNTARY SIGNATURE, I AGREE THAT I HAVE FULLY READ AND UNDERSTAND THIS DOCUMENT IN ITS ENTIRETY. I UNDERSTAND THAT THIS IS A LEGALLY BINDING CONTRACT NOT TO SUE AND AGREE TO BE BOUND BY IT.

This Agreement is binding from date of the Participant's signature until the end of the calendar year.

Signature of Participant _____ Date_____

Participant's Name (Print) _____

Witness _____ Date_____

If the participant is under the age of 18, then the parent or guardian must sign this agreement and agree to be legally bound by it and furthermore be legally responsible for the minor participant, including being responsible for all damages, injury or death which may occur as a result of the minor's participation in diving activities. The parent or guardian hereby agrees to be fully responsible to the "Released Parties" for any damage, injury or death caused by the minor, including actions brought by the minor, for any damages whatsoever.

The parent or guardian as well as the minor hereby also agree to dive in teams of three, consisting of two adults and the minor

Signature of Minor _____ Date_____

Name of Minor (Print) _____

Signature of Parent/Guardian _____ Date_____

Name of Parent/Guardian (Print) _____

INSTRUCTOR/LEADER CONFIRMATION

I HAVE REVIEWED THIS AGREEMENT AND CONFIRM THAT IT HAS BEEN PROPERLY COMPLETED.

Signature of UTD Instructor/Leader_____ Date _____

Important Instructions
The proper presentation, completion and keeping of records are important considerations if the desired protection is to be afforded a practicing professional by a RELEASE OF LIABILITY, WAIVER OF CLAIMS, EXPRESS ASSUMPTION OF RISK AND INDEMNITY AGREEMENT. To ensure the completed agreement will be most valuable to you in case a claim of negligence is made against you, follow these steps.

1. Instruction- Webster's New Universal Unabridged Dictionary © 1994 defines "safe" as, "1. secure from liability to harm, injury, danger, or risk: *a safe place.*" Clearly scuba diving is not safe! One of the attractions of scuba diving is the adventure and "danger" of the activity. We can make diving "safer." We can minimize risk. In concept every diving instructional program is in reality a risk management program, in that we develop the attitude, skills and knowledge necessary for the diver to participate in an adventure activity while minimizing the risks thereof.

2. Explain - An individual must be cognizant of the risks of an activity for which they are being asked to accept responsibility. Read the waiver and release agreement to the participants.

3. Answer Questions - Leave ample time to ask for and answer any questions regarding the release and risks of the planned dive or instructional activity. Refer to #1 as the reason releases are necessary.

4. Accuracy - It is important from a legal perspective that those named in the release, instructors, students, divers being supervised, and other entities be identified by their full legal names (middle initials are acceptable). Do not use nicknames such as ScubaBob for the instructors or assistants or other variations like Jimmy for James. Also, list each instructor or assistant on staff by name, not just as "staff." Waiver and release agreement wording is based upon recent legal developments and legal counsel's review and must not be altered in any way.

5. Complete - The entire release must be completed. This is the reason for the confirming signature now required of the instructor/leader who collects and reviews the release agreements. The reaffirmation signature line may be used before the trainees' first open water training dive or when they are transferring to a continuing education course with the same instructor. In either case the instructor supervisor must complete steps 1 through 3 to ensure that students or divers understand and have an opportunity to withdraw from the activity should they not wish to accept the risks and responsibility of the activity.

6. Timing - Participants must be given an opportunity to withdraw from the activity should they not wish to accept the risks and responsibility of the activity. This decision to participate or not must be theirs, and be free from coercion or penalty - monetary or otherwise. Therefore, it is important that the release agreement review session be scheduled as far in advance of an activity as is possible.

7. Record Keeping - The TRAINING WARRANTIES state, "All records relating to individual students shall be retained for a minimum of five (5) years by the instructor and/or dive center."

8. Producing the waiver and agreement in the event of a claim - It is required, upon request by the Association or its representatives, that you be able to provide an original, completed, properly executed waiver and release agreement. This is expressed in the warranties of the insurance policy and in UTD Standards and Policies.

9. In case of an incident - Refer to the UTD Standards and Procedures. There you will find accident management guidelines and a report form. Direct your completed report form and any questions you may have regarding an incident or the reporting form directly to UTD's BOD.

10. A properly executed waiver protects you, the Association and the insurance program underwriters from claims made against you. The lack of same can result in significant monetary losses to all involved and could result in a restriction or denial of your coverage because of your violation of the policy's warranty regarding waivers.

UTD International, LLC (Unified Team Diving) Medical Evaluation and Physician Approval

NAME:
_____
ADDRESS:
_____
CITY: _____
STATE/PROVINCE: _____ ZIP/POSTAL: _____
COUNTRY: _____ HOME/WORK PHONE:
_____

To the Instructor: If any condition listed on the medical history form in the student record folder is checked by the student, you are required to send the student to a physician for a medical exam. In the event that referral to a physician is necessary, provide the student with this UTD Medical Form and transfer the student's medical history and any notes to the copy to take with them to the physician.

To the Physician: This person is an applicant for training in diving with self-contained underwater breathing apparatus (SCUBA). This is an activity which puts unusual stress on the individual in several ways. A list of contraindications is attached to this form for your reference.

The student applicant's medical history below was provided during the enrollment process.

—— Behavioral health problems
—— Claustrophobia
—— Agoraphobia
—— Migraine headaches
—— Epilepsy
—— Ear or hearing problems
—— Trouble equalizing pressure
—— Sinus trouble
—— Severe hay fever
—— Heart trouble
—— High blood pressure
—— Angina
—— Heart surgery
—— Any medical condition not listed

—— Bronchitis
—— Tuberculosis
—— Respiratory problems
—— Back Problems
—— Back/spinal surgery
—— Diabetes
—— Ulcers
—— Colostomy
—— Hernia
—— Dizziness or fainting
—— Recent surgery
—— Hospitalized
—— Pregnant
—— Motion Sickness

—— Contact lenses
—— Dental plates
—— Physical disability
—— Serious injury
—— Over 40 years old
—— Hepatitis
—— HIV positive
—— Regular medication
—— Drug allergies
—— Alcohol or drug abuse
—— Rejected from activity
—— Asthma

Notes :
_____
_____
_____
_____

PLEASE RETURN THIS FORM TO THE STUDENT APPLICANT
Please note that the medical examination form presents a choice under IMPRESSION. We can only accept unconditional approval as stated for student applicants desiring to begin or continue training. If you conclude that diving is not in the individual's best interest or that their medical condition is likely to present a probable direct threat to others, please discuss your opinion with the person and check disapproval.

IMPRESSION:

___ APPROVAL (I find no medical conditions I consider incompatible with diving.)
___ DISAPPROVAL (This applicant has medical conditions which, in my opinion, clearly would constitute unacceptable hazards to health and safety in diving.)

Date_____ Signature _____ , MD.

Physician's Name (print):

_____

Address_____

Phone _____

Contraindications to Diving
This list of relative and absolute contraindications is not all inclusive. Contraindications that are absolute permanently place the diver and his diving partners at increased risk for injury or death. Relative contraindications to scuba may be resolved with time and proper medical intervention or may be intermittent. A bibliography is included to aid in clarifying issues that arise. The Divers Alert Network (DAN) physicians are available for consultation by phone (919) 684-2948 during normal business hours. For diving related emergencies call, DAN at (919) 684-8111 24 hours, 7 days a week.

OTOLARYNGOLOGICAL

Relative Contraindications:
- History of...
  - significant cold injury to pinna
  - TM perforation
  - tympanoplasty
  - mastoidectomy
  - mid-face fracture
  - head and/or neck therapeutic radiation
  - temporomandibular joint dysfunction
- Recurrent otitis externa
- Significant obstruction of the external auditory canal
- Eustachian tube dysfunction
- Recurrent otitis media or sinusitis
- Significant conductive or sensorineural hearing impairment
- Facial nerve paralysis not associated with barotrauma
- Full prosthodontic devices
- Unhealed oral surgery sites

Absolute Contraindications:
- History of...
  - stapedectomy
  - ossicular chain surgery
  - inner ear surgery
  - round window rupture
  - vestibular decompression sickness
- Monomeric TM
- Open TM perforation
- Tube myringotomy
- Facial nerve paralysis secondary to barotrauma
- Inner ear disease other than presbycusis
- Uncorrected upper airway obstruction
- Laryngectomy or status post partial laryngectomy
- Tracheostomy
- Uncorrected laryngocele

NEUROLOGICAL

Relative Contraindications:
- History of...
  - head injury with sequelae other than seizure
  - spinal cord or brain injury without residual neurologic deficit

– cerebral gas embolism without residual, pulmonary air trapping has been excluded
- Migraine headaches whose symptoms or severity impair motor or cognitive function
- Herniated nucleus pulposus
- Peripheral neuropathy
- Trigeminal neuralgia
- Cerebral palsy in the absence of seizure activity

Absolute Contraindications:
- History of...
  – Seizures other than childhood febrile seizures
  – TIA or CVA
  – Spinal cord injury, disease or surgery with residual sequelae
  – Type II (serious and/or central nervous system) decompression sickness with permanent neurologic deficit
- Intracranial tumor or aneurysm

CARDIOVASCULAR

Relative Contraindications:
The suggested minimum criteria for stress testing is 13 METS.
- History of...
  – CABG or PCTA for CAD
  – myocardial infarction
  – dysrhythmia requiring medication for suppression
- Hypertension
- Valvular regurgitation
- Asymptomatic mitral valve prolapse
- Pacemakers-Note: Pacemakers must be depth certified by the manufacturer to at least 130 feet (40 meters) of sea water.

Absolute Contraindications:
- Asymmetric sepal hypertrophy and valvular stenosis
- Congestive heart failure

PULMONARY

Asthma (reactive airway disease), COPD cystic or cavitating lung diseases all may lead to air trapping.

Relative Contraindications:
- History of...
  – prior asthma or reactive airway disease (RAD)*
  – exercise/cold induced bronchospasm (EIB)
  – solid, cystic or cavitating lesion
- Pneumothorax secondary to: thoracic surgery *, trauma or pleural penetration*, previous over inflation injury*
- Restrictive Disease**
  (*Air Trapping must be excluded) (**Exercise Testing necessary)

Absolute Contraindications:
- History of spontaneous pneumothorax
- Active RAD (asthma), EIB, COPD or history of the same with abnormal PFS or positive challenge
- Restrictive diseases with exercise impairment

GASTROINTESTINAL

Relative Contraindications:
- Peptic ulcer disease
- Inflammatory bowel disease
- Malabsorption states
- Functional bowel disorders
- Post gastrectomy dumping syndrome
- Paraesophageal or hiatal hernia

Absolute Contraindications:
- High grade gastric outlet obstruction
- Chronic or recurrent small bowel obstruction
- Entrocutaneous fistulae that do not drain freely
- Esophageal diverticula
- Severe gastroesophageal reflux
- Achalasia
- Unrepaired hernias of the abdominal wall potentially containing bowel

METABOLIC AND ENDOCRINOLOGICAL

Relative Contraindications:
- Hormonal excess or deficiency
- Obesity
- Renal insufficiency

Absolute Contraindications:
- Diabetics on Insulin therapy or oral anti-hypoglycemia medication

PREGNANCY

Absolute Contraindications:
Venous gas emboli formed during decompression may result in fetal malformations. Diving is absolutely contraindicated during any state of pregnancy.

HEMATOLOGICAL

Relative Contraindications:
- Sickle cell trait
- Acute anemia

Absolute Contraindications:
- Sickle cell disease
- Polycythemia
- Leukemia

ORTHOPEDIC

Relative Contraindications:
Chronic Back Pain
Amputation
Scoliosis - assess impact on pulmonary function
Aseptic osteonecrosis

BEHAVIORAL HEALTH

Relative Contraindications:

- History of
  - –drug or alcohol abuse
  - –previous psychotic episodes
- Developmental delay

Absolute Contraindications:

- History of panic disorder
- Inappropriate motivation for scuba training
- Claustrophobia and agoraphobia
- Active psychosis or while receiving psychotropic medications
- Drug or alcohol abuse

BIBLIOGRAPHY

The Physiology and Medicine of Diving, 4th edition, 1993; Diving and Subaquatic Medicine, 3rd edition 1994; Diving Physiology in Plain English, 2nd edition, 1997

UTD International, LLC STUDENT EVALUATION AND REGISTRATION FORM

This form is required for EACH UTD Course and EACH UTD student

Following each course, complete items A through D. Once completed, the instructor is to review the content and evaluation with the student. Score all items on a scale of 1 to 5. A passing grade of at least 3.0 or greater must be earned for each individual skill. This form is to be submitted to UTD AND remain in instructor's records for a minimum of five (5) years.

Course Title _____ **Started** _____ **Ended** _____

Instructor _____ **UTD Number** _____

Student _____ **C-Card Ordered?** _____

A. Buoyancy Control		**B. Propulsion Skills**	
1. At depth	_____	1. Overall finning technique and efficiency	_____
2. During ascent/descent	_____	2. Body posture (Trim)	_____
3. At safety or required decompression stops	_____	3. Ability to maintain position	_____
Average	_____	Average	_____
C. General Diving Skill/Knowledge		**D. Awareness**	
1. Pre dive plan	_____	1. Aware of buddy location	_____
2. Understanding decompression	_____	2. Physical presence awareness	_____
3. Execution of dive plan	_____	3. Responsive to signals	_____
4. Comfort with equipment configuration	_____	4. Capable of self rescue	_____
5. Knowledge/operation of all equipment	_____	5. Capable of buddy rescue	_____
6. Ability to manage equipment in water	_____	6. Awareness of line, depth, buddy	_____
7. Critical Skill Management	_____	7. Understand Team Diving	_____
8. Understanding problem management	_____	8. Sensitivity to environment	_____
Average	_____	Average	_____

Team Skills, tested and passed to Level _____ (1 to 4+) Skills: _____

Equipment Skills, tested and passed to Level _____ (1 to 4+) Skills: _____

Environmental Awareness, tested and passed to Level _____ (1 to 4+) Skills: _____

Comments: _____

_____

_____

INSTRUCTOR SECTION: In my instructor evaluation of this student, I find his/her awareness, skills, buoyancy control, propulsion techniques, general diving knowledge and equipment management abilities to be:
Recommended (inst. initials): _____ or not recommended (inst. initials):_____ for UTD certification at this level of training.

Therefore I, _____, UTD instructor number _____, recommend _____ (student name) as a UTD Certified Diver qualified at the _____ level (see UTD Standards for limitations).
Or
Student is not recommended and must complete the following improvements before being re-evaluated for UTD Certification. Re-evaluation must be held within one year of course end date. _____

STUDENT SECTION: I, _____ understand that I am being recommended as a UTD Certified Diver in the UTD course, _____. Based on UTD International, LLC Standards and Procedures, I agree to dive within the level of my UTD training. My training limits for this course are:
Max depth: _____ feet / _____ meters. Nitrox/Oxygen up to _____ % oxygen mixes.
Normoxic helium mixes? (Y/N) _____ Hypoxic helium mixes? (Y/N) _____ No more than _____ deco bottle(s).

Instructor signature _____ UTD Number _____ Date _____

Student signature _____ UTD number (for office use) _____ Date _____

REVERSE SIDE OF STUDENT EVALUATION FORM

Excerpted from:

UTD Standards and Procedures section 1.3 Training Process and Definitions

Evaluation

UTD Certification (Pass) – Receive a UTD Certification Card (C-Card)

In order to receive a UTD Certification (Pass) and receive the prestigious UTD Certification Card (C-Card) and/or UTD Certificate of completion, students must receive a final evaluation of 3 or higher on their final evaluation form.

Not UTD Certified (Provisional) – Does not receive a UTD Certification Card (C-Card)

The student did NOT receive a grade higher than 2 on their UTD final evaluation or 100% after review of their written examination.

Final Evaluations

> UTD Instructors are required to give a final written evaluation detailing the students' overall score. UTD Instructors must note at least three positive things for the student and any negatives, along with a written description of what exactly caused the Not UTD Certified (Provisional) rating if such was giving.

Evaluation Scale

> Grade 1: Not a Passing grade. (No Certification Awarded) Complete failure and unsafe.
> Grade 2: Not a Passing grade. (No Certification Awarded) Needs a lot of work.
> Grade 3: Passing grade. (UTD Certification Awarded) Needs improvement.
> Grade 4: Passing grade. (UTD Certification Awarded) Did extremely well .
> Grade 5: Passing grade. (UTD Certification Awarded) Achieved excellence.

UTD International, LLC (Unified Team Diving) Student Feedback Form

Feedback from you is crucial to maintaining quality instructors, classes, representatives and materials. The feedback you provide is kept private at HQ and your name and credentials are not revealed to the instructor, intern, representative in the event you submit feedback form. We simply use the feedback questionnaire to evaluate a trend in the instructor, class, teaching methodology, material and so on and then adjust things according to ensure a quality class.

Following each course, complete items 1 – 4. Please rate from 1 to 5. 1 being Not Acceptable, 3 being Acceptable but needs improvement and 5 being perfect. Please add any comments to the form that you would like to clarify. If you have a formal complaint please see the complaint section of our website on the complaint procedures.

Once completed, please submit to the QC department by either emailing it to qc@unifiedteamdiving.com or simply submitting it online.

Course Title:_____ Started:_____
Ended:_____
Course Location:_____
Instructor:_____
Student Name:_____ Did you complete the class? ____

1. Support Material Online Online Classroom: _____ Student Registration Process: _____ Support PDF's: _____ Diving DVD's: _____ Class power points:_____	**2. Course Completion Items** Instructor Debriefs: _____ Video Debriefs: _____ Student Evaluation Form: _____ Critical skills training:_____
3. Instructor Skill/Knowledge Ability to Lecture: _____ Understanding of Decompression:_____ Knowledge of Course Materials:_____ Co-Ordination of Class Plan: _____ Knowledge of personality types: _____ Ability to manage students in water: _____ Potential Emergency Management: _____ Understanding your learning needs:_____	**4. Expectations** Did the Instructor meet your Expectations: _____ Class Materials meet your Expectations: _____ Diving Skills meet your Expectations: _____ Meet your overall expectations: _____ Safe to dive to your cert level: _____ Would you recommend UTD to a Friend: _____

Comments:

_____
_____
_____
_____
_____
_____
_____

UTD International, LLC (Unified Team Diving) Instructor Recommendation

To the UTD Training Advisory Board,

This letter is a letter of recommendation for _____, a UTD Instructor Candidate (The Candidate). I, _____, UTD Instructor Trainer number _____, have trained and evaluated The Candidate and am recommending him/her as a UTD Instructor at the level of _____ for the classes noted below.

Instructor Trainer or Training Director's signature is required for each course recommended.

Open Water _____
Recreational 1 _____
Recreational 2 _____
Recreational 3 _____
Essentials of Rec _____
Essentials of Tech _____
Essentials of OH_____
Essentials of Scientific Diving _____
Nitrox Diver _____
Rescue Diver _____
Dry Suit Diver _____
Ess of Rec Side-Mount Diver_____
Ess of Tech Side_mount _____
Side Mount Mini _____
Technical Diver 1 _____
Technical Diver 2 _____
Tech Gold _____
Trimix Diver 1 _____
Trimix Diver 2 _____
Trimix Gold _____
Overhead Protocols _____
Wreck Diver 1 _____
Wreck Diver 2 _____
Cave 1 _____
Cave 2 _____
Technical Cave _____
Cave Scooter_____
Rebreather Cave_____
Advanced Cave Side Mount _____
Scooter 1 _____
Scooter 2 _____
Essentials of RB _____
mCCR 1 _____
mCCR 2 _____
mCCR 3 _____
pSCR 1 _____
pSCR 2 _____
Ratio Deco _____
Technical Gas Blender _____
Cylinder and Valve Tech _____
Scubatics Competition Diver _____
UTD Divemaster _____
Instructor Trainer _____
Other _____

Recommendations re: internships, additional training, etc to progress:

_____
_____
_____
_____

Signatures:

As a UTD Instructor Candidate, I understand and agree that this is a recommendation only. My final evaluation will be conducted by the UTD Training Advisory Board within 10 business days of the date of this letter and I will be notified of the outcome of that recommendation as soon as possible.

UTD Instructor Candidate: Print Name: _____ UTD No. _____

UTD Instructor Candidate Signature: _____ Date _____

UTD Instructor Trainer: Print Name: _____ UTD No. _____

UTD Instructor Trainer Signature: _____ Date _____

Reporting Instructions
Instructions for Accident Reporting

To Be Filled Out and Submitted As Soon As Possible.
Required By Your Insurance Carrier To Keep Your Policy In Effect.
This accident report and the information which is enclosed in this report is considered to be privileged and
specifically for the use of legal counsel. While it does not necessarily follow that each accident or incident involving a UTD member will result in some form of legal action, the possibility does exist that a legal claim could occur. By submitting this report immediately you will help us prepare to defend you and your association against loss. If an accident does occur during the time that you have responsibility for students and/or divers, there are several steps you should follow in addition to completing this accident report:

- Render aid to the best of your ability, but do not attempt to perform medical procedures which exceed your skill and your training.
- Do not volunteer to anyone an opinion as to why the accident occurred. Limit your discussion to the facts as you know them. Do not make conjectures and do not attempt to assess “blame” on anyone. Do not tell people that “it’s all my fault”, or words to that effect. Even if you have a feeling of guilt, do not discuss it with others!
- Cooperate with all law enforcement personnel who may be called to assist. While answering their questions, follow the instructions outlined above (in bullet #2). Limit your answers to the facts as you know them.
- Be certain to obtain the names, addresses and telephone numbers of all witnesses. This includes even those who you may consider to be “hostile” ones. For your protection, we need to know all those who are in any way connected with the accident.
- It is essential that you keep track of any equipment which may be involved in the accident. This does not mean you need to keep the equipment, but rather, know and report to us where it went and who had control of it when you last saw it.
- Be certain that you include a photocopy or the original of all waiver and release forms that you had the victim complete if the victim was under your supervision.
- Please use as many additional sheets of paper as are necessary to ensure that a clear and complete accounting of the accident is submitted.
- After you have prepared this report to the best of your ability, it should be submitted as soon as possible to:

UTD International, LLC
5835 Avenida Encinas #115
Carlsbad, CA 92008
info@unifiedteamdiving.com

If you have specific questions or problems relating to an accident or in filing this report, please call. There is an answering machine after business hours. Do Not Hesitate To Call!

UTD International, LLC (Unified Team Diving) Accident Reporting Form:

VICTIM INFORMATION:
Name_____
Address_____
Phone Number_____ Age ____ Date of Birth _____
Gender (check): ___M ___F Marital Status___ Height____ Weight_____
Certified Diver: __Yes __ No If YES, what agency?_____
Level of Diver Certification_____ Occupation_____
Date of Incident _____ Time of Incident_____

PERSON MAKING REPORT:
Name_____
Address_____
Phone Number: Work _____ Home _____
Did you witness the incident? _ Yes _ No Are you a Certified Diver? _ Yes _ No
Level of Diver Certification_____
Relationship to accident victim_____

DIVING LEADER INFORMATION:
Name_____
Address_____
Phone Number: Work _____ Home _____
Agencies certified by_____ Level of Diver Certification_____
Agency under which you are instructing under:_____
Professional liability Insurance company_____

WITNESS INFORMATION:
Names, addresses and phone numbers of key witnesses (if witness statements are taken, be sure the statements provide only facts and no opinions. Have witness date and sign each page. Attach copies to this report)
NAME STREET, CITY, STATE, ZIP TELEPHONE
_____
_____
_____

Accident Report Information:
GENERAL INFORMATION:
Type of incident: __ Non-injury __ Bodily injury __ Fatality
Diving activity at time of incident: __ Receiving instruction __Sponsored group diving
Other_____
Victim was: __ Scuba diving __ Snorkeling __
Other_____
Location of Incident::__ Pool __ Lake __ Quarry __ River __ Ocean __
Other_____
Describe location by state, county and nearest geographic location:
_____
_____
_____
Was there any apparent panic by victim? __ YES __ NO
Victim recovered: __ On surface __ Below, at depth
of_____
Length of time from incident to recovery of victim?

_____
Who made the rescue/recovery?

_____
Was rescue breathing attempted? __ YES __ NO
Was CPR attempted? __ YES __ NO
Was oxygen given? __ YES __ NO If YES, by whom?

_____
Were emergency medical services used? __ YES __ NO If YES, what agency?

_____
_____
_____
Was victim transported to medical facility? __ YES __ NO If YES, what facility?

_____
_____
____
Did the victim receive recompression treatment? __ YES __ NO
If YES, where?

_____
_____
Please attach a copy of any waiver, release or statement of understanding form. If the accident took place during training, please attach copies of training records. If possible, attach a copy of victim's log book.

VICTIM'S EQUIPMENT:
Of the following items, indicate those that apply:

__ Mask
__ Fins
__ Snorkel
__ BC Type & Size_____
__ Regulator
__ Protective Suit Type_____
__ SPG
__ Depth Gauge
__ Alternate Air Source Type_____
__ Weighting system Amount_____
__ Tank Size & Type_____
__ Knife
__ Surface Float Type_____
__ Underwater Light
__ Dive Computer Brand &
Model_____
__Other:_____
__

Were there apparent equipment problems? __ YES __ NO
Describe_____
_____
_____

Was the equipment rented? __ YES __ NO *If YES, from where?
_____
Amount of air in tank after incident_____ Current location of
equipment_____

Is equipment being tested?__ YES __ NO If YES, by whom?
_____
_____
DIVING INFORMATION:
Mode of entrance: ____ Shore ____ Boat ____
Other_____
Incident occurred: ____ On surface ____ Below at depth
of_____
Water conditions: ____ Calm ____ Rough _____ Wave Height _____ Water Temperature _____
Visibility
Victim was: __ Alone __ With buddy ___ Buddy contact broken ___ Entangled in what?
_____
Type of diving:

- __ Deep dive
- __ Current dive
- __ Wreck dive
- __ Boat dive
- __ Night dive
- __ Photography dive
- __ Limited visibility dive
- __ Cavern dive
- __ Other_____

BRIEF NARRATIVE DESCRIPTION (Attach separate sheet. Provide only the facts and no opinions.)
Include a list of emergency services or other agencies known to have taken reports.
Date of this report_____
Signature_____
_____

Do not provide this report to any other party.

Definitions

Appropriate Diver Support - First aid equipment including but not limited to a first aid kit suitable for the planned diving activities, an emergency oxygen unit with a capacity of delivering pure oxygen for at least 20 minutes and a communication system suitable for alerting emergency services.
Assistant Instructor – See Intern
Back-gas Break – A switch to the back gas (or the lowest PPO2 available) that is conducted during extended decompression that is done prior to any switch to long and high PPO2 exposure (1.4 ata or higher).
Bottom Mix – The gas mixture(s) in the cylinder(s) intended to be used during performance of the bottom time phase of the dive.
Briefing – Short pre-dive discussion between Instructor and students including but not limited to procedures to be followed (team assignments, entry, descent, ascent, surfacing, exit, time/depth limits, problem/emergency situations), site/environmental considerations, communication, pre dive equipment preparation, drills to be practiced (in case of training), and post dive procedures.
Cave Dive – Dives into a cavern/cave beyond where a light from an exit point can be seen.
Cavern Zone - the part of the overhead environment where daylight is still visible, however no further than 200 linear feet/60 meters from the surface. A cavern dive at night is a cave dive.
Commercial Diving – A form of diving, excluding instruction, where the diver works for hire and his/her employment depends on a willingness to dive.
Confined Water – Any body of water with limited current, which meets the appropriate UTD visibility requirements, that is calm and has shallow water access such as swimming pools, lakes, springs, sinks, quarries, bays, and beaches that are protected from open seas and rough water. Training sessions must be limited in confined water experiences to no deeper than 30 fsw (10 msw) for sport diver level courses and 40 fsw (12 msw) for technical diver level courses.
Confined Water Session – An instructional session that takes place in confined water. The confined water sessions will include an introduction, demonstration and student performance of watermanship, skills and techniques to be developed during the course. When teaching courses that combine two or more levels of training the confined water skills for the courses may be combined into one session.
Critical Skills – Drills or skills that involve loss of visibility, loss of mask, loss of lights, simulated out-of-gas scenarios, simulated manifold failures, “air gunning” drills, surprise valve manipulation such as roll off’s and isolator failures, rescue techniques involving assisting simulated panicked divers, convulsing divers and unconscious divers.
Debriefing - Post dive discussion between instructor and students including but not limited to comments on the dive and further directions. This briefing may begin with a *short* review on the surface following a dive, but will be continued after the water session is complete.
Decompression Mix – The gas mixture(s) in the cylinder(s) used during the ascent (decompression) phase of the dive.
Direct Supervision – Supervision by the instructor of the class or group of students from a distance allowing a direct intervention on behalf of the student.
Diver’s Medical Release – An approved diving medical statement. This is required prior to involvement in the first water session of a given course or combination of courses.
Emergency plan – A written piece of information including but not limited to procedures for casualty recovery, resuscitation and evacuation, use of emergency oxygen supply, information about the nearest medical resources and information about the nearest hyperbaric recompression chamber.
END – Equivalent Narcotic Depth
Endorsement - An endorsement adds to a current certification level to certify that the diver is proficient at the required skills and is now allowed to access the additional privileges the endorsement provides.
Escorting – Supervision of an individual student or group of students by someone other than

the instructor. (Qualified teaching assistants may escort students during surface excursions and exits, ascents and descents and may attend to remaining students while the instructor conducts a skill with other students or if no skills are being performed by the student).
Helitrox – A breathing gas mixture of Normoxic Trimix that includes, Helium, Nitrogen, and up to 25% oxygen. UTD Standard Helitrox mixes are 25/25 and 21/35 only.
Gap - In a cave, the space between the end of one permanent line and the end of another permanent line. Does not involve a navigational decision.
Indirect Supervision – Supervision by a qualified teaching assistant during segments of a dive where skills are not practiced. An Instructor must be present at the site and in control of the activities. The Instructor must approve all diving activities, approve the dive plan, perform dive preparations and equipment configuration, observe entries, exits and debriefings, and be prepared to quickly enter the water if necessary. The Instructor must be able to respond to any emergency and must be able to take control of any program at any time.
Instructor – An individual who is qualified by UTD to teach complete or a part of specific diver training courses.
Instructor Trainer – An individual who is qualified by UTD to teach specific instructor training courses, upon completion of a formal instructor trainer development and evaluation course.
Intern/Assistant Instructor – An Instructor Candidate who has completed a UTD IDC but is not yet qualified as an Active Status Instructor in a particular category.
Jump - In a cave, the space between the end of one permanent line and the middle of another (or vice-versa) or the middle of one permanent line and the middle of another. Involves at least one navigational decision.
In Water Training - A combination of confined water and open water dives.
Mainline (often referred to the “gold line” in Florida) - a permanent line in a cave or cavern, which may be - but not necessarily is - thicker than temporary lines (e.g. primary reel line or spool line). This permanent line usually represents the “trunk line” of the cave/cavern, while jump lines may be viewed as “branch lines.”
Minimum Decompression (Min. Deco) – An ascent profile for No-decompression dives (N.D.L. dives) that begins at one-half the maximum depth of the dive, then stops for one minute for every 10’/3m thereafter until the surface. The 1 min stops includes the ascent time to the next stop depth.
Mini Class- A mini class is a specific skill or set of skills that is normally part of a certification class. A diver would take a mini to learn these specific skills of a class in order to adequately prepare for that class. Mini’s generally consist of a short lecture and dives illustrating the skills. Mini’s are non certification and purely demonstration of the skill set.
Open Water (OW) – Any body of water, excluding swimming pools and training tanks, that is 15 fsw (4.5 msw) or deeper for sport diving courses, or at least 40 fsw (12 msw) deep for technical diving courses.
Overhead Environment – Any dive site that has a physical ceiling, such as wrecks and caverns, from which a quick and direct escape to the surface cannot be safely made.
Overseeing – The overall control, intermittent supervision, evaluation, and direction of instruction, student skill performance and diving activities by an instructor of a class or group of students. The instructor must be present at the training site and on the training dives, and be prepared to render appropriate in-water assistance in aid of a student.
Oxygen Cycle – Oxygen cycles are considered ten to fifteen (10-15) minutes on 100% oxygen at a PPO2 of 1.6 followed by a reduction of the high PPO2 (1.4 and above) by either a direct ascent to the surface on the oxygen therefore lowering the PPO2 or a back gas break (on the lowest FO2 back-gas available which is safe at current depth). The back gas break is only conducted if further O2 cycles are needed.
Pre Dive Check - A check including but not limited to gas availability and suitability for the dive and equipment operating condition. It is sometimes conducted by the dive buddy in the water or just before entering.
Ratio Deco - Ratio Deco is a methodology that allows a diver to apply various existing decompression models into a cohesive strategy for the team to apply during a dive. It is

decompression “on the fly.” Ratio Deco is NOT a scientific decompression model or theory, rather it is an application of those theories.
Recreational Diving – All forms of diving intended for recreational purposes or instruction of recreational divers, in which the diver has the option to dive. This includes both the most popular form of recreational diving, sport diving; as well as technical diving, which is an advanced form of recreational diving.
Software Generated Tables – Decompression profiles produced by various dive planning soft ware ,
These may be used in conjunction with the required UTD Dive Tables or a Dive Computer. In training the student must always have UTD dive tables in their possession when performing dives as primary or back up schedules.
Speciality Class- A speciality class is a specific class certifying the diver in a specific set of skills or piece of equipment that they can then safely use at the current level of certification and/ or configuration.
Sport Diving – The most common form of recreational diving. Sport diving is performed using either air or Nitrox mixtures up to 40% oxygen on dives no deeper than 130 fsw (39 msw). Sport divers at the level of Advanced EANx or Advanced Recreational Trimix, which is defied as an entry level technical course may not engage in dives requiring a total of more than 15 minutes of decompression time, or dives with a higher decompression PO2 of 1.5.
Supervision – Having direct control over an individual student or group of students, with an ability to directly intervene if needed.
Teaching Assistant – See Intern
Technical Diving – An advanced form of recreational diving utilizing skills, techniques, equipment and knowledge beyond the requirements of sport diving. Technical diving includes, but is not limited to, dives deeper than 130 fsw (39 msw), dives into overhead environments beyond a visible exit point, dives using mixed gas (in addition to sport diving EANx mixtures), and dives requiring staged decompression.
Training Dives – An excursion by a student diver into open-water or overhead environments while fully equipped for the planned activity. Each dive must include at least one entry and one exit and underwater activity breathing from SCUBA for a minimum of 20 minutes to a depth of at least 20 fsw (6 msw) for sport diving courses, or 40 fsw (12 msw) for technical level courses.
Travel Mix – The gas mixture(s) in the cylinders used to provide an advantageous or safer breathing mixture while descending or traveling to or in some cases from a deeper phase of the dive.
Trimix – A breathing gas mixture of Hypoxic Trimix that includes, Helium, Nitrogen, Oxygen. UTD Standard Trimix mixes are 18/45, 15/55, 12/60, 10/70 only
Virtual Overhead Environment – Any dive from which a direct ascent to the surface would violate required decompression obligations.
Waiver – An UTD Inc./UTD liability waiver. A waiver is needed for each specific course or, if a series of courses are taught concurrently, one waiver may list each Program in the training curriculum. If there is an interruption in the training program of more than 90 days, a new waiver shall be completed.
Workshop - A workshop is a non certification class that demonstrates to a student a specific set of skills and technique. All participants receive a certificate of participation.
Wreck Penetration – Excursions inside of a wreck beyond where light from an exit point can be seen.