



NEWSLETTER

Volume 14 May, 2024

Our Mission

Working with explosives demands a high level of skill and expertise to ensure safety and efficiency in every operation. Whether you're a seasoned professional or new to the field, understanding the requirements for qualification and certification is essential. Our training program serves as a foundational step, ensuring that every individual is equipped with the essential knowledge and skills needed to operate safely and effectively in their respective roles.

At the heart of these training courses lies a commitment to fostering a culture of safety, professionalism, and expertise within the explosives industry. By adhering to professional standards and continuously updating our training protocols, we aim to uphold the highest standards of excellence and ensure the well-being of both our students and the communities we serve.

If you're interested in pursuing qualification or certification in explosives, be sure to visit our website PetrExplosivesGroup.com. Stay informed, stay safe, and let's continue to uphold the highest standards of excellence in our field.

Happy Summer 2024! We enjoyed attending the Best of the West Drill & Blast Conference in Spearfish, SD this year and seeing many new faces as well as old friends. We were happy to see Bill O'Brian, who is retiring soon from the ATF. We also want to congratulate Janeen Smith, former Colorado State Inspector, who is now the president of ISEE. The conference Best of the west is smaller conference that ISEE but t smaller 260 participants but they have invite speakers and presenters from ISEE to share with the audience. The very important section is on new Explosives regulation which are presented during the conference. You can meet your inspector from you state (state Inspector Scott Narreau from Colorado presenting new regulatory changes for Colorado and explaining new challenges by Federal regulatory agency ATF.



We are very pleased to report that it's been another great year for Petr Explosives Group. We have been working hard on our academy of online classes, hands-on trainings and more and are very excited to share some updates. Our online Practical Explosives Training School (PETS) license renewal courses are now approved in 16 different states plus a version in Spanish! South Carolina is our newest addition to the renowned PETS lineup. Even more states will be coming soon, including North Dakota.





This past year we also taught a unique 2-day short course for Hawaii law enforcement on the safe handling and storage of high and low explosives. This training course was requested by Hawaii due to the large amounts of illegal fireworks that are being confiscated. If you are interested in organizing a similar training course, please contact us. We have also continued to work with Henderson Mine on their avalanche mitigation program and with space companies on training their new employees.

We have seen a growing demand in industry for well-trained new employees. As the former generation of blasters retire, much of the current practical knowledge is leaving with them and therefore leaving the next generation without the hands-on experience needed in industry. To help transition in this new generation of blasters, PetrExplosivesGroup has been working hard to develop new practical, hands-on training academy classes. These academic and practical trainings are 2-3 days long, with one day spent on blast design and Federal and State regulations, and the rest spent with hands-on training exercises in the field. These exercises enable participants to learn and practice safety procedures, loading and blasting procedures, blast design calculations, vibration monitoring, evaluation of blast results, and completing blast report records. Upon completion, the participants have a complete understanding of the blasting process specific to their application.



**Only YOU
can prevent
explosive accidents**

Upcoming Conferences & Papers

International Pyrotechnic Society (IPS) Seminar

We are excited to announce that we will be attending the 47th International Pyrotechnic Society (IPS) Seminar in Albuquerque, NM in July, 2024 and will presenting our latest paper "Navigating Regulatory Complexity in the Energetics Field Through Education: Challenges and Opportunities." We hope to see many of you there and share in the exciting happening in the explosives and pyrotechnic industry,

International Workshop on Combustion & Propulsion

We are also happy to report that we plan on attending the 14th International Workshop on Combustion and Propulsion (IWCP) in Pescara, PE, Italy in late July, 2024. Our abstract "Evaluating Exploding Foil Ignitor (EFI) Velocity Using Ultra-High-Speed Imaging and Photon Doppler Velocimetry (PDV)" has been approved.

International Society of Explosives Engineers (ISEE) Annual Conference

We plan on attending the ISEE 51st Annual Conference on Explosives and Blasting Techniques in Cherokee, NC in January, 2025 and we will also be submitting an abstract for publication.



Hands-On Surface Blasting Today

We recently held a very successful surface blasting class in Craig, Colorado as part of our new series of practical, hands-on training classes. During the course, the participants carried out their blast plan and successfully blasted 10 holes. We would like to extend our sincerest gratitude to Anson Excavating & Pipe Inc. for allowing us access to their Moffat Limestone quarry and Detecht Vibration Monitoring, Dynamic Instrumentation for Blasting & Construction for sharing their vibration expertise with the class. We hope to offer this class again in the near future.



PETS Toolbox: Free Blasting Calculator App

We would also like to remind everyone about our free app, PETS Toolbox, which now has even more unique calculators to help blasters with inventory and blasting calculations. As new classes are developed, new related tools are added to our calculator. We now have several new calculations for underground blasting, secondary blasting, fly rock estimation, impedance and coupling, bench blasting cost analysis, underwater blasting, and much more.

These new capabilities are being developed so that our blasters can use this quick and practical tool both in the classroom and for everyday work in the field.

Please visit our website or scan the QR code to download this PETS toolbox on your mobile device or computer (please note this app is not in any app store, it is available exclusively through our website).



SSOP Review & Hazard Analysis

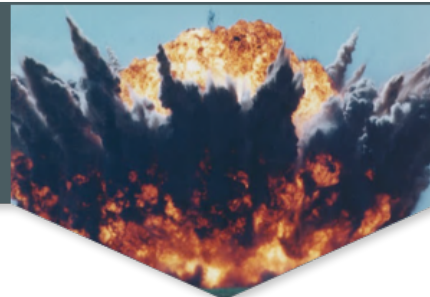
PetrExplosivesGroup has been working with multiple private companies who are starting new processes to analyze potential hazards and write or review standard safe operating procedures (SSOPs). If you are interested in a third party review of your energetic material procedures, please contact us!



Upcoming In-Person Academy Courses



Explosives Engineering, Science & Technology Comprehensive Short Course



Explosives Engineering, Science & Technology

We are excited to announce that we will be hosting our annual comprehensive short course on Explosive Engineering, Science & Technology on **September 24-27, 2024 in Golden, Colorado**. We have seen large support of this type of education in energetic materials. This course is ideal for students, engineers and scientists interested in advancing their knowledge and careers. The instructors for this course are Dr. Vilem Petr from PetrExplosivesGroup, Dr. Ruth Doherty from Energetics Technology Center, Dr. Kyle Sullivan from Lawrence Livermore National Laboratory (LLNL), and Dr. Tariq Aslam. This unique short course opportunity will include additional expert guest speakers and will allow participants to advance their careers and expand their networks.

Please note this course is limited to US citizens only and follows ITAR rules. The cost is \$2,950. To learn more or to register for this course, please visit us at <https://petrexplosivesgroup.com/explosive-science-engineering-short-course/>.

Topics Include

Chemistry of Explosives | Comparisons, dramatic personae, formulations
Initiation Theory & Systems | Firing train, DDT, overview & comparisons
Shock Wave Physics | Physical & mathematical descriptions, CJ & ZND models
Detonation Physics | Physical & mathematical descriptions, Chapman-Jouguet & Gurney
Instrumentation & Diagnostics | Techniques, comparison & evaluation
Numerical Modeling Methods | Eulerian & Lagrangian hydrocodes, model validation
Advanced Manufacturing | Capabilities, applications, 3-D printing
Reactive Materials | Ignition & combustion mechanisms, safety considerations
Explosive Manufacturing | Choice of manufacturing method (synthesis & formulations)
Laboratory & Test Procedure Safety | Small & large-scale, case studies, DOT, UN

What Last Year's Participants Have to Say

"I really enjoyed the variety of the speakers. The breadth of background and skill was admirable"

"The instructors were extremely knowledgeable & friendly. Dr. Petr has infectious positive energy!"

"Variety of subjects covered, with both academic and practical approaches"

"This was a great course for someone entering the energetics field + great network opportunity"

"I enjoyed the interaction and Q&A of every speaker"

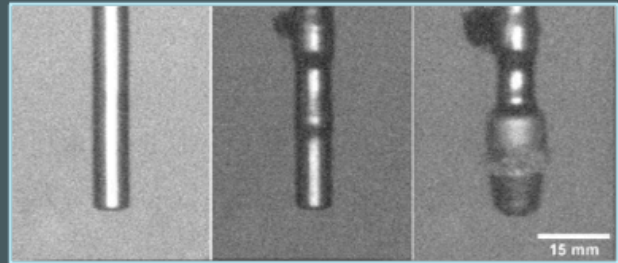
Additionally, **100%** of the participants responded that they would recommend this course to others!



Monday, September 23, 2024

High-Speed & Ultra-High-Speed Imaging 1-Day Short Course

Golden, Colorado

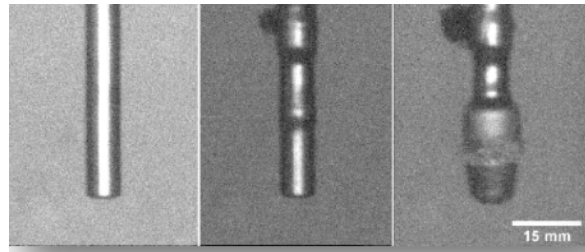


Cost: High-Speed Imaging ONLY | \$1,750
Add-On to Explosives ES&T | \$1,350

Embark on a thrilling exploration of cutting-edge technology with our High-Speed and Ultra-High-Speed Imaging Short Course sponsored by Specialised Imaging, a dynamic one-day program to immerse you in the fascinating world of high-speed cameras used during explosives science and technologies. Discover the fundamentals of high-speed imaging systems, from camera specifications to frame rates, lighting, and triggering mechanisms. Engage in hands-on sessions, where you'll work directly with state-of-the-art high-speed cameras, capturing fast-paced phenomena in real time. Our expert instructors will guide you through lighting techniques, image processing, and analysis, ensuring you gain practical skills applicable across diverse industries. Dive into captivating case studies, witnessing high-speed cameras in action across science, engineering, medical and sport, and more. By the end of the course, you'll understand the intricacies of high-speed imaging and have the confidence to apply your knowledge through practical demonstrations and exercises. Elevate your expertise and join us on this exhilarating journey into high-speed and ultra-high-speed imaging. Secure your spot now for a transformative learning experience!

Topics

- Safety Considerations
- Introduction to High-Speed Imaging
- Lenses & Optics
- Illumination & Lighting Considerations
- Camera Triggering & Synchronization
- *Hands-On*: Shock Waves, Detonation, Deflagration
- *Hands-On*: Schlieren & Shadowgraph Methods
- *Hands-On*: Using Software to Analyze Test Results





Introduction to Aggregates & Sand Pit Operation, Optimization & General Maintenance

Unlock the Secrets of Quarrying Excellence!

November 6-7, 2024 Golden, CO \$995



JOIN US FOR AN IMMERSIVE 1.5 DAY EXPERIENCE WHERE INDUSTRY EXPERTS WILL GUIDE YOU THROUGH THE LATEST TECHNIQUES & INNOVATIONS IN QUARRYING.

∞ What to Expect ∞

Expert Sessions: Learn from seasoned professionals about cutting-edge practices and technologies shaping the quarrying industry.

Hands-On Workshops: Get dirty and gain practical experience with equipment demonstrations and interactive activities.

Networking Opportunities: Connect with peers, share insights, and forge valuable connections within the quarrying community.

Q&A Sessions: Have your burning questions answered by industry leaders.

∞ Who Should Attend ∞

Quarry Managers | Operations Supervisors | Engineers & Technicians | Safety Officers | Environmental Managers | Anyone passionate about quarrying excellence!

∞ Topics ∞

- ❖ Quality Control
- ❖ Equipment Selection & Impact on Aggregate Operations
- ❖ Environmental Impacts & Sustainability
- ❖ Financial Considerations & Calculations
- ❖ Effects of Bucket & Excavator Sizing on Excavating & Handling Costs
- ❖ Excavatability
- ❖ Crushing & Screening Methods & Selection
- ❖ Conveyer Belts & Transportation



∞ Registration Information ∞

Limited spots are available! Reserve your place today by registering at <https://petrexplisivesgroup.com/introduction-to-aggregates-registration>.

Don't miss this exclusive opportunity to elevate your quarrying knowledge and skills in just 1.5 days!



In-Person Practical Explosives Training School (PETS) Colorado

PetrExplosivesGroup.com is looking forward to our upcoming Practical Explosives Training School (PETS) 16-hour general explosives courses. This course will be held in-person on November 20-21, 2024 in Golden, CO. Registration is now open at <https://petrexplosivesgroup.com/course-registration/>. This course is for new and current blasters to update their knowledge on the latest explosive practices and regulations and obtain 16-hours of continuing education credit for renewal of their Type 1 Blasters License with the State of Colorado.

Dr. Vilem Petr has been teaching the PETS course for over 10 years in conjunction with the ATF and the Colorado Department of Labor and Employment Office of Public Safety. We would like to thank the Colorado State Explosives Program representative, Scott Narreau for his continued support and upcoming guest lectures during these courses.

Stay Certified, Stay Safe: Renew Your Blasters License Online Classes & Save \$200.

All Practical Explosives Training School (PETS) classes are certified with their respective state and pre-approved to fulfill the continuing education requirement. They are also recognized by industry professional associations including the International Makers of Explosives (IME) and the International Society of Explosive Engineers (ISEE). Here is a current list of our online explosive license/certificate of fitness renewal course offerings.



Alaska | 8-hours
Colorado | 16-hours
Hawaii | 8-hours
Indiana | 8-hours
Kentucky | 8-hours
Missouri | 8-hours
Montana | 8-hours
Nebraska | 16-hours
New York City | 8-hours
NYC Blast Monitoring Specialist | 8-hours
North Dakota | 8-hours *coming soon*
Pennsylvania Surface | 8-hours
Pennsylvania Underground | 8-hours
South Carolina | 4-hours
Tennessee | 8-hours & 16-hours
Virginia | 8-hours and 16-hours
Washington | 8-hours
Wyoming | 8-hours
PETS En Español | 16-hours

Don't see your state listed? We are working hard to added even more states to our list of pre-approved courses. Please send us an email to get notified when your state becomes available.



Summer Savings for Blasters!

This summer, we're excited to announce a special promotion for all blasters participating in our online classes. From May to August 2024, seize the opportunity to save **\$200** on your course fees and unlock a wealth of knowledge to enhance your skills and expertise.

How to Redeem Your \$200 Savings:

To claim your **\$200 discount**, enroll in any of our online classes between May and August 2024. The discount will be automatically applied to your course fees, making investing in your professional development easier than ever without breaking the bank. This exclusive summer offer is only available for a limited time, so don't delay! Secure your spot in our online classes today and take the first step towards advancing your career as a blaster. Visit our [website to learn more and enroll now](#).

Why Renewal Matters:

Renewing your blaster's license isn't just a bureaucratic requirement; it's a commitment to safety and professionalism. By staying certified, you demonstrate your dedication to maintaining high standards in your field, ensuring the safety of your colleagues and your community. Our online classes provide a convenient and comprehensive way to renew your blaster's license. Here's what sets us apart:

1. **Flexible Learning:** Access our courses anywhere, anytime, fitting your studies around your busy schedule.
2. **Expert Instruction:** Learn from industry experts who bring real-world experience and in-depth knowledge to every lesson.
3. **Interactive Learning:** Engage with interactive modules, quizzes, and practical exercises reinforcing your understanding and retention of crucial concepts.
4. **Updated Curriculum:** Our courses regularly reflect the latest regulations and best practices, ensuring you're always learning the most relevant information.
5. **Supportive Community:** Connect with fellow blasters through discussion forums and networking opportunities, fostering collaboration and knowledge-sharing.

The Benefits of Renewal

Renewing your blaster license with our online classes offers numerous benefits, including:

- **Compliance:** Ensure you meet regulatory requirements and avoid costly penalties or fines.
- **Safety:** Stay informed about the latest safety protocols and techniques, reducing the risk of accidents or incidents.
- **Career Advancement:** Maintain your professional credentials, opening doors to new opportunities and career growth.
- **Confidence:** Approach your work confidently, knowing you have the skills and knowledge to handle any situation safely and effectively.

Don't Wait, Renew Your Blaster License Today!



Petr International Explosives Academy Overview

Our **Petr International Explosives Academy (PIEA)TM** is a 3-tiered, practical and academic program with both in-person and online course offerings, has been designed to prepare participants with the requisite technological skills necessary for today's generation explosive users.

Tier I comprises our State-specific Practical Explosives Training School (PETS) courses, meticulously crafted to meet state-approved standards and meet continuing education requirement to renew explosive user permits/licenses/certificates of fitness. In Tier II and Tier III, we offer undergraduate and graduate-level classes tailored to support individuals seeking to deepen their understanding of fundamental principles without the lengthy commitment of a traditional university. These specialized courses are designed to expedite learning and provide comprehensive knowledge in specialized topics, enabling participants to advance their expertise swiftly and effectively.

All courses are recognized by esteemed professional associations such as IME and ISEE, and uphold the highest standards of excellence in the industry. This unique program is designed to accommodate a broad range of backgrounds, including the new generation who wishes to obtain basic knowledge in explosives science, those interested in applying for a blasting license, and/or students interested in advancing their knowledge or careers. In addition, experts interested in advancing their knowledge in world-class cutting edge technologies will obtain the skills and technological tools required to advance in science and engineering fields.

Courses Available Online

Tier I | Blasters & End Users

- PETS Practical Explosives Training School

Tier II | Academics

- Introduction to Explosives, Products & Commercial Applications
- Explosives Science & Technology

Tier III | Special Uses

- Avalanche Mitigation
- Surface Blasting
- Underground Blasting
- Secondary Blasting
- Environmental Effects & Vibration Monitoring
- Introduction to UXO Removal
- Industrial Explosive Cleaning
- *More coming soon!*

Courses Available In-Person

Tier I | Blasters & End Users

- PETS Practical Explosives Training School
Colorado (*November 15-16, 2023 in Golden, CO*)

Tier III | Special Uses

- Explosives Engineering, Science & Technology (*September 26-29, 2023 in Golden, CO*)
- Hands-On Surface Blasting Today
(*October 4-5, 2023 in Craig, CO*)
- Hands-On Secondary Blasting Today
(*TBD, 2024 in Jackson Hole, WY*)
- High-Speed Imaging for Explosive & Ballistic Applications (*TBD*)

If you have 6 or more employees who require training, we can organize an in-person class specific to your needs! Please contact Dr. Vilem Petr at vpetr@petrexplivesgroup.com to inquire.



Unlock Your Blasting Potential with Golden Petr Explosives Group's Hands-On Classes

Under the guiding principle of "Lean Better with Petr," we present a comprehensive array of educational courses meticulously crafted to empower participants with theoretical knowledge and practical application. Our core mission revolves around providing a safe, immersive, and hands-on learning environment, ensuring participants acquire the indispensable skills essential for a thriving career in blasting.



As a blaster, you'll devise blast designs and calculations, strategize optimal methods for loading blast holes with explosives, and execute controlled detonations to extract valuable resources or facilitate demolition projects. The expertise gained through our program unlocks doors to diverse career opportunities in construction, mining, drilling, and blasting companies.



Our curriculum is structured upon three fundamental pillars, each crucial for success in the field. First, safety is paramount, encompassing rigorous protocols for handling energetic materials and addressing environmental concerns such as vibration, fly rock, and dust. Second, comprehensive knowledge forms the backbone, with a deep dive into explosive techniques supported by rigorous exploration of scientific principles, mathematical applications, and effective communication strategies. Lastly, practical know-how is honed through supervised experiences, enabling students to confidently navigate each step and effectively communicate with stakeholders, be it management, clients, or the general public.



With an unwavering dedication to practical learning, participants devote significant time to hands-on laboratory/ mine site work, immersive field classes, and

challenging assignments. Our state-of-the-art drilling and blasting training center provides an unparalleled setting for refining skills and mastering the intricate nuances of the trade. We are looking forward to working with you.

If you're ready to embark on a fulfilling career characterized by continual growth and an ever-evolving landscape of challenges, our program stands as your gateway to success in the dynamic realm of blasting. Join us at Golden Petr Explosives Group and unlock your true potential in the explosive industry.





We're Here to Support You

If you have any questions about our program or need assistance during the testing process, our team is here to help. Don't hesitate to reach out—we're dedicated to your success. vpetr@petrexplosivesgroup.com or office phone: (303)273-0303



**Learn Better
with Petr!**

Renewing your blaster license is a vital step in maintaining safety and professionalism in the workplace. With our convenient online classes, achieving this goal has never been easier. Enroll today and take the first step towards a safer, more secure future. [Learn better with Peter — join us now!](#)

Unlock your potential and save \$200 on our online classes for blasters this summer. With our expert instruction and flexible learning options, you'll gain the skills and knowledge you need to excel in your field. Don't miss out on this special opportunity — enroll today and invest in your future success!

Thank You Industry Partners

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Thank You,

Petr Explosives Group