

Petr Explosives Group.com[™]

Center of Excellency for Explosives Engineering Research & Education

NEWSLETTER

Volume 16 February 2025

Our Mission

At Petr Explosives Group, we understand that working with explosives requires both expertise and a strong commitment to safety and efficiency. Whether you're an experienced professional or just starting out, meeting certification and qualification requirements is essential to your success.

Our training programs provide a solid foundation, equipping you with the knowledge and hands-on experience to work safely and effectively in your role.

We are committed to instilling a culture of safety, professionalism, and expertise within the explosives industry. By continually updating our training protocols and adhering to the highest standards, we empower you to succeed while ensuring the safety of both our students and the communities we serve.

Enhance your professional qualifications or certifications by visiting PetrExplosivesGroup.com or contacting **Dr. Petr**. Stay informed, stay safe, and together, let's set the standard for excellence in our field.



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Happy New Year!

As we step into 2025, we are excited about the opportunities and challenges that lie ahead in our dynamic industry. This year brings new regulatory changes, innovative projects, and emerging possibilities, all of which set the stage for growth and advancement. Our focus remains on educating and empowering the next generation of blasters, engineers, and scientists while continuing to provide valuable professional development for those already in the field. We are also introducing new training classes and modules to support expertise in surface, underground, and avalanche industries, fostering innovation and honoring our commitment to safety and collaboration. Additionally, we're thrilled to attend key conferences to reconnect with colleagues, meet new industry partners, and strengthen relationships through shared knowledge and ideas.

In 2025, we're expanding our efforts to tailor educational programs for specialized industry and military applications, emphasizing safety, fundamental knowledge of energetic materials, and diverse commercial applications. We're also offering support for the reviewing of blast reports, safety operation procedures, and research or development of new explosives technologies. Our team is dedicated to guiding you through the complex landscape of federal and state regulatory requirements, ensuring compliance with best practices while driving excellence across the industry. As we move forward, we remain committed to supporting growth, innovation, and safety. Here's to a successful and productive year ahead—let's work together to make 2025 extraordinary!



Steven Beggs and Vilem Petr

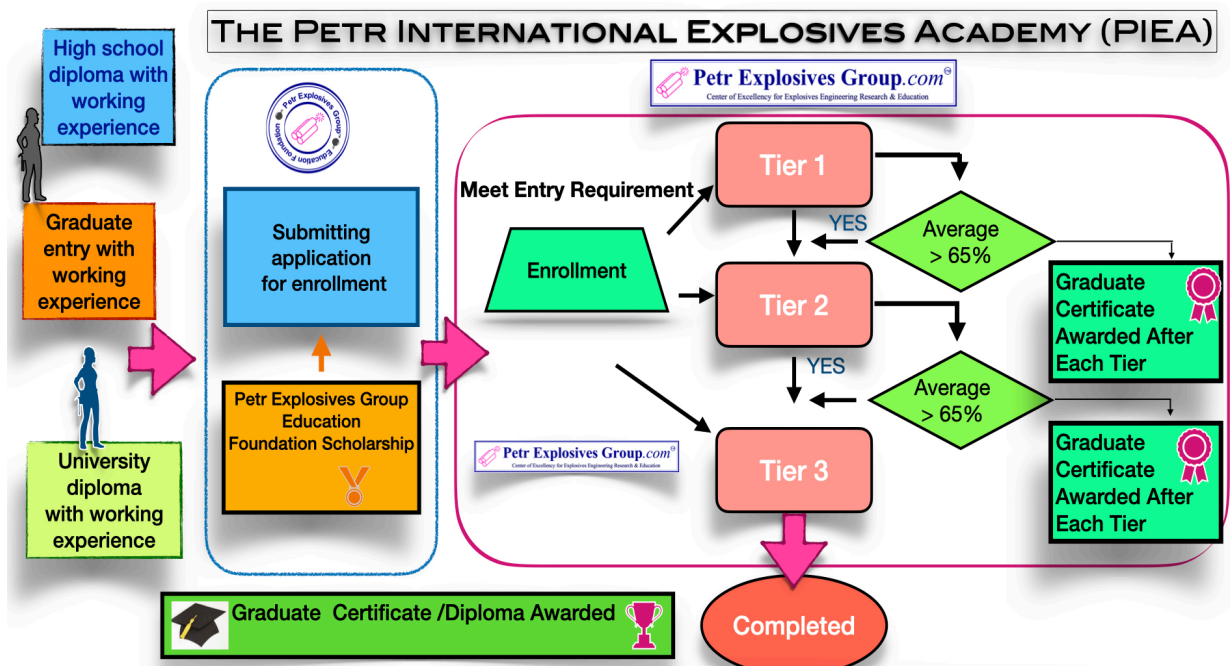
Petr International Explosives Academy Overview:

The Petr International Explosives Academy (PIEA)[™] is designed to provide essential training for careers in explosives science, engineering, and related industries. With flexible online and in-person options, the program is accessible to both beginners and experienced professionals.

The program has three levels:

1. **Beginner (PETS Certificate Courses)** – Focused on obtaining blasting licenses or certificates.
2. **Academic** – Offers university credits or continuing education opportunities.
3. **Advanced** – Provides hands-on training with cutting-edge technologies like detonation physics and high-speed imaging.

Fully accredited and scholarship-supported, PIEA allows students to complete an 18-credit program in approximately four months. Upon completion, students will earn a **Diploma from the International Academy in Explosives Engineering**, equipping them with the skills and qualifications to pursue careers in industry, research, and government roles. PIEA is your path to becoming a leader in the explosives field.



EDUCATION FOUNDATION SCHOLARSHIP OPPORTUNITY!

Petr Explosives Group's Education Foundation[™] is excited to offer \$20,000 in Explosives Engineering Scholarships for the 2025-2026 academic year. These scholarships are available to undergraduate students, graduate students, and individuals seeking to advance their understanding of safety regulations and industry applications through [The Petr International Explosives Academy[™]](https://www.PetrExplosivesGroup.com). To apply for this incredible opportunity, please visit our website at [PetrExplosivesGroup.com](https://www.PetrExplosivesGroup.com)



Upcoming In-Person Academy Courses



Explosives Engineering, Science & Technology Comprehensive Short Course



Explosives Engineering, Science & Technology

We are thrilled to announce our **4th Annual Comprehensive Short Course on Explosive Engineering, Science & Technology**, happening **September 8–12, 2025**, in **Golden, Colorado!** This exclusive event is your chance to gain cutting-edge knowledge and skills in the dynamic field of energetic materials.

WHY ATTEND?

This is not just a course—it's an investment in your future. Led by world-renowned experts, including **Dr. Vilem Petr (Petr Explosives Group)**, **Dr. Ruth Doherty (Energetics Technology Center)**, **Dr. Kyle Sullivan (Lawrence Livermore National Laboratory)**, and **Dr. Tariq Aslam**, this program provides insights from top-tier industry and academic professionals. You'll also hear from **special guest speakers**, gaining unparalleled access to expertise and networking opportunities that can transform your career.

WHAT YOU'LL LEARN

Immerse yourself in a variety of topics critical to the field:


- **Chemistry of Explosives:** Explore formulations, comparisons, and critical players.
- **Initiation Theory & Systems:** Master firing trains, DDT, and system overviews.
- **Shock Wave Physics:** Dive into physical and mathematical models, including CJ and ZND.
- **Detonation Physics:** Gain insights into Chapman-Jouguet and Gurney models.
- **Instrumentation & Diagnostics:** Learn cutting-edge techniques and evaluation methods.
- **Numerical Modeling Methods:** Discover Eulerian & Lagrangian hydrocodes and validation.
- **Advanced Manufacturing:** Explore 3D printing capabilities and applications.
- **Reactive Materials:** Understand ignition, combustion, and safety protocols.
- **Explosive Manufacturing:** Learn about synthesis methods and formulations.
- **Safety Practices:** Review laboratory and testing safety with real-world case studies.

WHY THIS COURSE STANDS OUT

This course is a rare and exclusive opportunity, limited to **U.S. citizens only** and conducted under **ITAR regulations**. Beyond the hands-on learning experience, you'll expand your professional network and position yourself at the forefront of the explosives industry.

 **Seats Are Limited—Register Now!**

Secure your spot today to ensure your place in this career-changing experience. For more details and to register, visit petrexplosivesgroup.com/explosive-science-engineering-short-course.

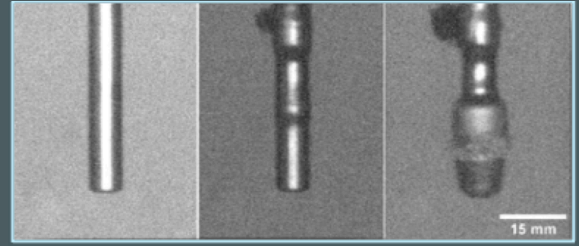
 **Don't miss out—join us to build your knowledge, enhance your career, and connect with leaders in the field of explosive engineering!**

Monday, September 8, 2025

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

High-Speed and Ultra-High-Speed Imaging

Join us for an exhilarating High-Speed and Ultra-High-Speed Imaging Short Course, a one-day immersive experience sponsored by Specialised Imaging. Dive into the fascinating world of high-speed cameras and learn how these cutting-edge technologies are transforming the field of explosives science and beyond.

WHAT YOU'LL LEARN

This comprehensive course covers everything you need to know about high-speed imaging systems, including:

- Safety Considerations
- Introduction to High-Speed Imaging
- Lenses & Optics
- Illumination & Lighting Techniques
- Camera Triggering & Synchronization

HANDS-ON TRAINING

Get hands-on experience with state-of-the-art high-speed cameras, capturing fast-paced phenomena such as shock waves, detonations, and deflagration. You'll also explore Schlieren and Shadowgraph methods and learn to use advanced software for analyzing test results.

REAL-WORLD APPLICATIONS

Discover captivating case studies showcasing high-speed cameras in action across industries like science, engineering, medical fields, sports, and more. Gain practical skills and insights that can be applied to diverse professional settings.

WHY ATTEND?

By the end of this course, you will:

- Understand the fundamentals of high-speed imaging systems.
- Master lighting, camera synchronization, and image processing techniques.
- Confidently apply your knowledge through practical demonstrations and exercises.



Practical Explosives Training School (PETS)

 **November 19-20, 2025**

 **Location: Golden Community Center, Golden, CO**

Join us for the Explosives and Blasting Basics Course:

A two-day training event hosted by The Practical Explosives Training School (PETS) in collaboration with the Colorado Department of Labor and Employment. Whether you're new to the field of blasting or looking to refine your skills, this course provides the foundational knowledge essential for anyone working with explosives.

What You'll Learn

This course is designed specifically for Type 1 permit applicants and covers critical topics, including:

- Explosives regulations and safety protocols
- Compliance with ATF and Colorado State Explosives Permit requirements
- Blasting techniques and industry best practices
- Risk management and safety considerations

Hands-On Training

Get exposure to real-world blasting processes and safety measures, exploring how regulations and safety practices prevent accidents and ensure efficient blasting operations across various industries like construction and mining.

Why Attend?

By the end of this course, you will:

- Understand essential regulatory frameworks
- Learn safety practices to protect yourself and others
- Earn 16 hours of continuing education for Type 1 permit applicants

Registration Details

Cost: \$775 (includes tuition, course materials, lunch, and refreshments)

Group Discounts: Available—contact us for more details.

Our class on February 5-6, 2025, was a great success, and we're already looking forward to the next one!

Upcoming Session: Join us for another class scheduled for February 11-12, 2026.

For more information, please reach out to Dr. Petr at vpetr@petrexplosivesgroup.com.





PETR Explosive Group Client Testimony

We had the opportunity to speak with Mr. Clint McDonald, Manager of Health, Safety, and Environment at Barmenco, to gain his insights on the program and its value for professionals in the explosives industry.

Q: What aspects of explosives regulations do you find most challenging to understand or apply in your work in the U.S.?

Navigating the process for international specialist employees to obtain federal permits is particularly complex, but with the guidance and expertise provided by PETR Explosives Group, we are implementing rigorous procedures to ensure full compliance within the legal framework.

JQ: Why do you believe continuing education on explosives regulations is important for your role and the industry as a whole?

Continuing education is not just important—it's essential. Remaining current and compliant with legislative requirements in every jurisdiction we operate safeguards our reputation, ensures community trust, and, most importantly, protects our people. Safety is the foundation of everything we do.



How did you learn about PETR Explosives Group and its education program?

The State of Colorado's Division of Oil and Public Safety, along with the state grants programs listed on their website, initially led me to PETR Explosives Group. Among the options available, PETR stood out—highly regarded and positioned at the top of the list. It was my first choice, and I couldn't be happier with the decision.

Q: What is your current level of understanding regarding explosives regulations, and how often do you engage in training on this topic? Will you likely use PETR Explosives Group again?

As a global mining company specializing in high-speed underground development, staying on top of explosives regulations across every region we operate is absolutely critical. We take pride in ensuring our employees handling explosives receive industry-leading, benchmark training. PETR Explosives Group has set a high standard, and we'll definitely continue to utilize their expertise. Our goal is to integrate PETR Explosives Group and Practical Explosives Training School as the benchmark standard for our U.S. operations.



Q: Can you provide examples of how continuing education on regulations has improved safety or compliance in your work?

The mining industry is constantly evolving. Products improve, practices advance, and staying ahead of the curve is non-negotiable. Refresher courses have enabled our experienced blasters to remain aligned with these improvements, while also equipping them to pass on their knowledge to newer team members. These courses reinforce understanding of why certain practices exist, clarify changes, and ensure compliance. In several cases, this has directly prevented incidents and improved operational outcomes.

Q: What led you to choose an in-person class over an online course or webinar?

Engagement. There's no substitute for face-to-face interaction when tackling a subject as serious and intricate as explosives. The in-person setting fosters deeper understanding and more effective learning.

Q: Would you consider incorporating hands-on training as part of a Practical Explosives Training School to benefit new blasters from different countries? Specifically, would training on basic magazine inventory, terminology, blasting practices, and explosives products add value to their learning experience?

Absolutely. Our initial course with PETR Explosives Group was tailored for senior management and seasoned blasters, with a strong focus on federal and state regulations. It set the tone for the level of seriousness and application required. Moving forward, incorporating hands-on training will be a key priority. Practical sessions will verify competency, enforce strict safety standards, and provide new blasters with invaluable insights into the fundamentals—magazine inventory, terminology, blasting practices, and the proper use of explosives products. This strategy aligns with how we aim to operate in the U.S. and reflects our commitment to setting non-negotiable company standards.





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Naval Surface Warfare Center, Indian Head Division

Join us for a specialized training program, in partnership with the **Naval Surface Warfare Center, Indian Head Division (NSWC IHD)**, designed to enhance your expertise in explosives, propellants, and combustion science.

What You'll Learn:

This program covers:

- Fundamentals of Explosives – Chemistry, physics, and safety protocols of explosives.

- Propellants and Combustion – Combustion principles and propulsion systems for military and space.
- Warhead Mechanics – Warhead design, penetration principles, and target effects.
- Safety and Handling – Proper storage, transportation, and disposal protocols.

Hands-On Experience

Gain practical skills through hands-on training focused on safety, risk assessment, and real-world applications in energetic materials.

Real-World Applications

Explore case studies and techniques relevant to military, aerospace, and industrial sectors, guided by industry experts.

Why Attend?

By attending, you'll:

- Master handling and safety procedures for energetic materials.
- Understand key principles in explosives, propellants, and warhead mechanics.
- Receive a certificate of completion to validate your expertise.

Take your knowledge to the next level and join us for this invaluable training experience!





INTERNATIONAL PYROTECHNICS SOCIETY

Save the Date: International Pyrotechnic Society (IPS) Seminar in Colorado Springs – 2026

Join us for an exciting event in 2026! This seminar will bring together experts and enthusiasts from around the world to explore the latest in pyrotechnics. More details to follow soon!

What to Expect:

The IPS Seminar is a must-attend event for those in the pyrotechnics and energetic materials industries. It brings together experts from around the globe to discuss the latest advancements, research, and technologies in the field of pyrotechnics, fireworks, and related industries.

Why Attend?

This is a fantastic opportunity to network with professionals, gain insights from leading experts, and stay at the forefront of the industry. Whether you're looking to learn, collaborate, or simply share your passion for pyrotechnics, this seminar will be an unforgettable experience!

Need More Info?

For additional details or any questions, feel free to reach out to Linda Crouse at (+1) 303-601-8550 or via email at LcrouseIPSUSASeminars@gmail.com.

We can't wait to see you there in 2026!





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We are excited to announce the **36th Annual Best in the West Conference**, happening **April 23-25, 2025**, in **Spearfish, South Dakota**! This premier event is your opportunity to connect with leaders in mining, drilling, blasting, and safety regulation.

17 What is the Best in the West?

The Best in the West Drill and Blast Conference is a dynamic three-day event bringing together industry professionals, suppliers, and government agencies. With over 300 registrants and 40 supplier booths, this is the ultimate platform for networking, innovation, and learning. The focus is on safety, government regulations, and the latest in drilling and blasting technologies. Attendees come from across the country and even from abroad!

Supporting the Future of the Industry

The revenue generated from the conference directly funds an ambitious scholarship program that has awarded over \$100,000 in scholarships to students from seven states over the past 20 years. We are proud to continue this tradition of supporting the next generation of mining professionals.

Highlight:

Scholarship Benefit Auction A highlight of the event is the Scholarship Benefit Auction. All donations, whether large or small, make a huge impact in supporting our scholarship efforts. If you have an auction item to donate, or if you'd like to contribute a door prize (think hats, shirts, or small branded items with your company logo), we would greatly appreciate your generosity.

Why Attend?


This conference is an excellent opportunity to learn from the experts, grow your professional network, and contribute to the future of the industry. Plus, you'll have a lot of fun along the way!

Seats are Limited—Register Now!



International Workshop on Combustion and Propulsion

 **Location: Pescara, PE, Italy.**

 **July 6-9, 2025**

15th International Workshop on Combustion and Propulsion (15-IWCP)
Advanced Design, Additive Manufacturing, and Characterization of Modern Energetic Materials

Guided Tour of Rome: July 10-12, 2025

Event Overview

This leading workshop will feature:

- Plenary and Invited Lectures from experts in high-energy materials, fireball dynamics, and more.
- Interactive Round Tables discussing external radiation and innovations in additive manufacturing.
- Networking Opportunities with professionals in combustion and propulsion.
- Panel Discussions and Technical Sessions to encourage learning and creative ideas.

Key Highlights

The 15-IWCP will focus on:

- Advanced Design and Additive Manufacturing of modern energetic materials.
- The latest developments in combustion and propulsion technologies.
- Recent research in energetic materials and rocket propulsion.

Global Collaboration

This event continues the tradition of promoting international collaboration, started in 1990 by the SPLab of Politecnico di Milano. It provides a platform for researchers, engineers, and industry leaders to:

- Share new research and technological advancements.
- Discuss the challenges and environmental impacts of the field.
- Build future collaborations and partnerships.

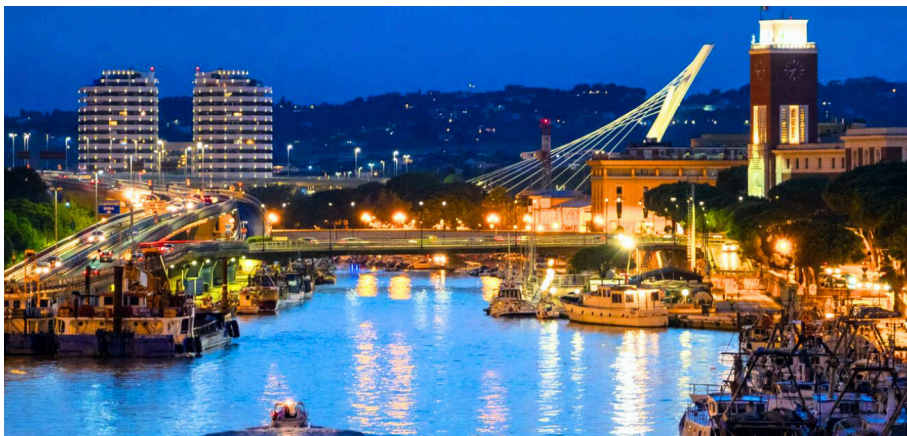
Why Attend?

By joining the 15-IWCP, you will:

- Gain valuable insights into the future of energetic materials.
- Participate in discussions with industry experts.
- Expand your professional network and connect with global leaders in the field.



We look forward to seeing you in Pescara for this exciting event!



World Conference on Explosives and Blasting – Kraków, 2025

Join us for the 13th World Conference on Explosives and Blasting, taking place from September 20-23, 2025, at the ICE Kraków Congress Centre in Poland. This premier international event brings together professionals from the explosives, construction, and mining industries to explore cutting-edge research and developments in blasting technology.



Event Highlights

This must-attend conference will feature:

- Keynote presentations from leading experts in explosives and blasting.
- Networking opportunities with industry professionals from around the world.
- Technical excursions to explore real-world applications and innovations.
- Cultural activities to experience the rich history and beauty of Kraków.

Call for Papers

Professionals are invited to submit abstracts for technical papers to be included in the conference proceedings. This is a fantastic opportunity to share your research, innovations, and insights with a global audience of industry leaders.

Venue

The ICE Kraków Congress Centre, a modern and state-of-the-art facility on the Vistula River, will host this prestigious event.

For More Information

Visit the official conference website: www.efeworldconference.com

Why Attend?

By attending the 13th World Conference on Explosives and Blasting, you will:

- Gain valuable insights from global experts on the latest trends and technologies in explosives and blasting.
- Expand your professional network and build relationships with industry leaders.
- Participate in hands-on experiences during technical excursions and gain practical knowledge you can apply to your work.

We look forward to seeing you in Kraków!



Canal De Panamá

Petr Explosives Group is excited to offer a specialized explosives education program under our International Explosives Academy Program (IEAP) for Canal de Panamá employees. This initiative features a series of three progressive courses focused on enhancing expertise in surface blasting, with a particular emphasis on underwater blasting.

Program Overview

This comprehensive training program includes:

- In-Person Lectures: Detailed lessons on explosive technology and safe practices.
- Independent Study Projects: Engaging exercises to reinforce learning and critical thinking.
- Hands-On Training: Practical, real-world applications of explosives technology.

Diploma in Explosives Technology

Participants who successfully complete the program will earn a Diploma in Explosives Technology from IEAP. This qualification equips them with:

- Advanced decision-making skills.
- Problem-solving techniques specific to blasting operations.
- Expertise in resource management and safe, efficient blasting practices.

Underwater Surface Blasting

The final course, Underwater Surface Blasting, combines intensive classroom instruction and hands-on training. Participants will learn how to design and execute effective blasts while considering:

- Geological factors
- Environmental impact.



Practical Experience & Final Assessment

Through independent study, practical application, and oral presentations, students will gain a comprehensive understanding of explosives technology. Successful completion of the program results in a diploma that signifies mastery in the field.

Why Participate?

By completing this program, participants will:

- Master advanced blasting techniques, both on land and underwater.
- Develop skills for designing and executing complex blasting projects.
- Enhance their problem-solving and decision-making abilities in a high-stakes environment.





Linda Crouse

Linda Crouse has worked as an Executive Assistant for many years for several Engineering Companies (including Applied Research Associates, Inc., Apogee Scientific, etc.) in Colorado.

Prior to returning to Colorado, from the Washington D.C. area, she worked in the Executive Office of the President for two previous Presidents.

She also continues to serve as the International Pyrotechnics Society Seminar Coordinator and has been in this position for over 20 years.

Phone: 303-601-8550

Email: lcrouse18@msn.com



New Team member!

Ava Beggs is a full-time Biology student at the University of Colorado Boulder. She also works part-time as an associate manager, helping to create the company newsletter

Ava is passionate about learning more about explosives technology and performance and is eager to expand her knowledge while connecting with industry leaders.

If you have any questions or inquiries, feel free to reach out to her at:

Phone: 303-273-0303

Email: abeggs@petrexplosivesgroup.com





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Stayed informed!

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 are committed to your success. You can contact us at vpetr@petrexplosivesgroup.com or call us at **(303) 273-0303**.

Renewing your blaster license is an essential 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 toward a safer, more secure future. Learn better with Petr — join us now.



**Learn Better
with Petr!**



FREE mobile application for blasters to help you easily calculate the net explosive weight in your magazine. This unique **calculator** converts the **number of detonators, feet of detonating cord, shock tube, safety fuse, to pounds** and more!

PETS's Toolbox was designed to mitigate any issues with magazine inventories during ATF and State inspections.

- Reduced potential error with calculation
- Reducing error with converting units
- Reporting incorrect quantities
- This tool will make your next inspection both easy and comfortable.

Please visit our website to download this PETS toolbox

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Blog | <https://petrexplosivesgroup.com/blog/> Thank You, Petr Explosives Group