Postgraduate Certificate in Explosive Engineering

Explosive Detection and Countermeasures

Acoustic Gunshot Detection System: A system that uses microphones and software to detect and locate gunshots based on the sound waves they produce. Related terms include: Gunshot detection, acoustic sensing, and gunfire locating systems.

Canine Explosive Detection: The use of trained dogs to detect the presence of explosive materials. Related terms include: Working dog, explosive odor detection, and passive detection.

Contraband: Any item that is prohibited or illegal to possess, transport, or use. Related terms include: Illegal goods, prohibited items, and smuggled items.

Counter-IED Operations: Military or law enforcement operations designed to detect, disrupt, and defeat improvised explosive devices (IEDs). Related terms include: IED defeat, IED disruption, and IED mitigation.

C-4 (Composition 4): A type of plastic explosive that is widely used by the military. Related terms include: Explosive plastic, military explosive, and C-4 compound.

Detonation: The rapid and instantaneous release of energy caused by the explosion of an explosive material. Related terms include: Explosion, deflagration, and detonation velocity.

Electronic Nose (e-Nose): A device that uses sensors to detect and identify volatile organic compounds (VOCs) given off by explosive materials. Related terms include: VOC detection, explosive vapor detection, and e-Nose technology.

Explosive: A substance or mixture of substances that can produce an explosion. Related terms include: Explosive material, explosive device, and explosive ordnance.

Explosive Detection Canine Team (EDCT): A team consisting of a trained dog and a handler who work together to detect explosives. Related terms include: Explosive detection canine, working dog, and explosive odor detection.

Explosive Ordnance Disposal (EOD): The detection, identification, on-site evaluation, render-safe, recovery, and disposal of explosive ordnance. Related terms include: Bomb disposal, EOD operations, and EOD technician.

Explosive Ordnance Disposal Robot (EOD Robot): A remote-controlled robot used to detect, identify, and dispose of explosive ordnance. Related terms include: Bomb disposal robot, EOD robotics, and remote-controlled robot.

Explosive Trace Detection (ETD): The detection of microscopic particles of explosive material. Related terms include: Explosive residue detection, trace explosive detection, and ETD technology.

Gunshot Residue (GSR): The residue left on a person's hands or clothing after firing a gun. Related terms include: GSR analysis, gunshot residue testing, and GSR evidence.

Handheld Explosive Detection: Portable devices used to detect explosives, including handheld metal detectors, X-ray scanners, and ionization detectors. Related terms include: Portable explosive detection, handheld explosive scanner, and explosive detection device.

Improvised Explosive Device (IED): A homemade bomb or explosive device that is designed to cause harm or destruction. Related terms include: Improvised explosive, homemade bomb, and IED attack.

Ionization: The process of adding or removing electrons from atoms or molecules, resulting in a charged particle. Related terms include: Ionization detector, ionization technology, and ionization process.

Magnetometer: A device used to detect magnetic fields, including those produced by metal objects. Related terms include: Metal detector, magnetic field sensor, and magnetic anomaly detection.

Microwave Imaging: A non-invasive imaging technique that uses microwaves to produce images of objects or materials. Related terms include: Microwave scanner, microwave imaging technology, and microwave detection.

Non-Intrusive Inspection (NII): The use of non-destructive testing methods to inspect objects or materials for the presence of explosives. Related terms include: Non-destructive testing, non-intrusive inspection technology, and NII systems.

Optical Sorter: A machine that uses cameras and software to detect and sort objects based on their optical properties. Related terms include: Optical sorting technology, optical detection, and optical sensor.

Optical Time-Domain Reflectometry (OTDR): A technique used to measure the optical properties of a material by sending a short pulse of light into the material and measuring the time it takes for the light to return. Related terms include: OTDR measurement, OTDR testing, and OTDR technology.

Post-Blast Investigation: The examination of a bombing site after an explosion to gather evidence and determine the cause of the explosion. Related terms include: Blast investigation, post-blast analysis, and post-blast investigation techniques.

Quadrupole Mass Spectrometer: A type of mass spectrometer that uses a quadrupole to separate and analyze ions. Related terms include: Mass spectrometer, quadrupole mass filter, and quadrupole technology.

Radiation Detection: The use of radiation detectors to detect the presence of radioactive materials or radiation. Related terms include: Radiation monitor, radiation detector, and radiation measurement.

Standoff Detection: The detection of explosives or other threats from a distance, without requiring physical contact with the object or material being inspected. Related terms include: Standoff detection technology, standoff explosive detection, and standoff sensing.

Trace Explosive Detection: The detection of microscopic particles of explosive material. Related terms

include: Explosive trace detection, explosive residue detection, and trace explosive identification.

Underwater Explosive Detection: The use of sonar or other underwater detection techniques to detect explosives or other threats beneath the surface of the water. Related terms include: Underwater sonar, underwater detection, and underwater explosive detection technology.

Vapor Generation: The process of generating vapor from an explosive material for detection and analysis. Related terms include: Vapor generation technology, vapor detection, and vapor sample.

X-Ray Inspection: The use of X-rays to inspect objects or materials for the presence of explosives or other threats. Related terms include: X-ray scanner, X-ray inspection technology, and X-ray detection.

Z Backscatter Imaging: A type of imaging technology that uses X-rays to produce images of objects or materials by measuring the backscattered radiation. Related terms include: Z backscatter technology, Z backscatter imaging system, and Z backscatter detection.