## UE Systems Inc. – USA

***Manufacturers of famous Ultraprobe® ultrasonic detection instruments since 1973,***

**presents the:**

# 9th Certified Predictive Maintenance Ultrasound Training Course

# in Greece

***Use the Ultrasound Power to set up a complete Predictive Based Maintenance program on your installations***

### *AIRBORNE ULTRASOUND CERTIFICATION*

Airborne Ultrasound is a nondestructive test. The effectiveness of airborne ultrasonic tests depends upon the capabilities of the personnel who are responsible for, and perform inspections. Certification is a written documentation of qualification. Certification is evidence that personnel performing airborne ultrasound possess knowledge and understanding of the test method and also gives the inspector the confidence needed to perform the inspection to the highest level of success. In order to meet the requirements of the American Society for Nondestructive Testing (ASNT) Recommended Practice, SNT-TC-1A, specific topics must be addressed in the classroom training. The suggested hours of instruction are 32 hours for Level I.

**Who Should Attend This Course?**

- Inspectors seeking to advance their knowledge in Airborne/Structure Borne Ultrasound Inspection, Supervisors.
- Energy Auditors.
- Service Company personnel who perform PDM, energy audits or leak detection for their clients.
- Service personnel who desire to demonstrate technical and inspection proficiency to their clients.
- Level I certified inspectors in order to advance to Level II certification.

**Applications**

- Leak Detection
- Electrical Inspection
- Mechanical Inspection
- Bearing Applications
- Lubrication

**Date: 7-10 April 2020, 09.00-17.00 (includes a 15' break for every 45' minutes of teaching time)**

**Place: 80, Ionias str, Alimos, Athens**

**Language: English with Greek Assistance**
**Attendance Fees : 995 € plus VAT (if applicable) / person**
**(lunch, class materials, instrument and training simulation setup use and certification is included in the price).**

**REGISTRATION TRAVEL & LODGING INFORMATION**

**Arpedon P.C.**
**80 Ionias STR**
**Alimos, GR-17456**
**phone: +302109933536.**
**fax: +302109941647.**
**email: info@arpedon.com**

# Level I Training

## *UE Systems Course Description: Level I*

Conforming to the classroom requirement of ASNT Recommended Practice, SNT-TC-1A, the course offers 32 hours of instruction with a written examination. This is a comprehensive classroom course in which the theory, principles and practices of Airborne Ultrasound Technology are taught. Also, the training material is in accordance to ISO 18436-8, standard for condition monitoring and diagnosis of machines. Instructors for this course have been selected for their outstanding comprehension, experience and technical expertise in the field of Airborne / Structure Borne Ultrasound. The course is designed by a committee of experts, some of whom were responsible for pioneering and developing the technology.

**Outline of Some of the Topics of Basic Course, Level I:**

**Day 1:** Certification requirements for Level I, Level II and Level III reviewed, Theory of Sound, Basic Physics of Ultrasound, Concepts of Amplitude, Velocity, Wave Modes, Ultrasound Wave Transmission and Effects, Effectiveness of Airborne Ultrasound, Typical Applications Overview, Technology Integration, Equipment / Instrument / Software Overview, generalized methods of recording and reporting inspection results.

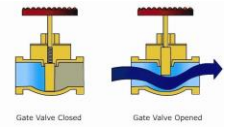
**Day 2: Leak Detection:** Concepts of Leak Detection, Fluids Defined, Leak Rates, Acoustic Properties of a Leak, Types of Leaks, Leak Strategies, Leak Detection Methods: Pressure, Vacuum, Ultrasonic Sound Generation, Liquid Leak Amplification, Gross-to-Fine Method, Leak Confirmation Methods, Working in Noisy Environments, Shielding Techniques, Inspecting Heat Exchangers, Conducting a Compressed Air Leak Survey: determining CFM loss, computing energy savings, carbon footprint reduction, recording and reporting survey results.

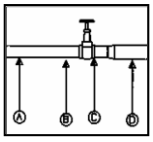




**Day 3: Electrical Inspection:** Safety Considerations, Overview of Types of Electrical Equipment, Voltages Defined, Acoustic Effects Versus Heat Generated Defects, Integration of Ultrasound and Infrared Methods, Detection Methods for High Voltage Equipment, Overview of Equipment for High Voltage Inspection, Detection Methods, Confirmation Methods, Substation Inspection, Radio Frequency Interference, Television Frequency Interference Detection Methods, Spectral Analysis of common electric emissions. Contact approach, Mechanical Inspection overview, Valves, Compressor inspection, Hydraulic Valves.




**Day 4: Steam Trap Inspection:** Steam Applications, Steam Trap types, Acoustic properties, Inspection Techniques, Recording and Reporting , Mechanical Inspection: Considerations of Ultrasonic Generation, Strategies of Mechanical Inspection, Review of Proactive and Predictive Maintenance Concepts, Generic Trouble Shooting Methods, Generic Trending Methods, Inspection of Compressors, Gears, Pumps, Motors, Fans, Isolating Sound Sources, Bearing Inspection / Trending Concepts, Condition Based Lubrication, Lubrication Starvation, Over Lubrication, Levels of Failure, Monitoring, Data Logging, Sound Analysis and Recording methods, Sound Spectral Analysis, Data Management, Recording and Reporting Results. Review of Airborne Ultrasound Technology, Applications and Methods, Practical Experience Review, and General, Specific and Practical Examination.






Requirements for Level I Certification

In order to achieve an official certification, classroom training meeting the requirements of SNT-TC-1A must be completed along with successfully passing the General, Specific and Practical examinations with a score of 80% or better. Documentation of education or experience must be maintained annually. Hearing acuity must meet the minimum requirement of one ear of less than 25 dBHL (with or without aid.) Hearing acuity examinations must be documented annually. Documented experience signed by a supervisor or superior for 3 months or 210 hours.