Venue

Université Gustave Eiffel, Nantes campus

Allée des ponts et chaussées, 44 344 Bouguenais, France

Registration and Contact

Registration to the USES² Training School is compulsory. Please register before the 18th of May, 2026.

For more information and registration, please click here

or email uses2@univ-eiffel.fr

Know more about the project
https://www.uses2.eu/

USES 2
Uses of UltraSonic Embedded Sensors
https://www.uses2.eu/

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FIRST ANNOUNCEMENT

USES² Training School

USES of novel UltraSonic and Seismic Embedded Sensors for the non-destructive evaluation and structural health monitoring of infrastructure and human-built objects

The USES² Training School aims at teaching and demonstrating the latest advancements in ultrasonic and seismic embedded sensor technologies for non-destructive evaluation (NDE) and Structural Health Monitoring (SHM) of infrastructure and engineered systems. It brings together lectures, hands-on exercises, and demonstrations led by experts and doctoral candidates to build participants' skills in:

- Innovative sensor technologies
- Advanced mechanical wave methods for imaging and monitoring
- Smart structures and materials including robust compensation for environmental and operational conditions
- Practical exercises using cutting-edge techniques in SHM and NDE fields

SAVE THE DATE

May 25th to May 29th 2026

USES² project has received funding from the European Union's Horizon 2021 research and innovation programme Marie Sklodowska-Curie grant agreement No 101072599

USES²

Current SHM typically uses sensors that provide local information only, which may be insufficient for detecting interior degradation or require very dense networks. Furthermore, the performance of both in-situ sensing systems and algorithms to process and interpret the sensor data is reduced when subject to Environmental and Operational Conditions (EOC). This limits their large-scale deployment.

USES² aims to develop and combine novel emerging sensing technologies (optical fibre and wireless piezoelectric sensors), advanced processing (compressed sensing, artificial intelligence) and full-mechanical-waveform based imaging to tackle these issues.

USES² includes 3 scientific Work Packages (WP), 7 first-class academic organisations, 3 industrial companies, 12 partner organisations, an advisory board composed of 6 members and 11 PhD students.

Course content

Innovative sensor technologies

- Optical fibre sensors
- Electronics
- Wireless sensors
- Energy harvesting

Advanced mechanical wave methods for imaging and monitoring

- Diffuse waves
- Ambient noise
- Ultrasonic imaging

Smart structures and materials

- Robust compensation for environmental and operational conditions
- Innovative sensors: compressed sensing
- Multi-data source, multi-sensor monitoring

Practical exercises using cutting-edge techniques in SHM and NDE fields

Keynote: Physic informed AI

Artistic numerical exhibition

- Artistic exhibition
- Master piece created by the duo artist Scénocosme and the Doctoral Candidates of USES²

Lecturers

- **Prof. Parisa Shokouhi (Penn.State University, USA)**
- **Dr Sylvain Magne (CEA, France)**
- **Prof. Anthony Croxford (UBRI, UK)**
- **Dr Romain Noel (Université Gustave Eiffel, France)**
- **Dr Odile Abraham (Université Gustave Eiffel, France)**
- **Dr Alessandro Brovelli (Isamgeo, Italy)**
- **Dr Ernst Niederleithinger (BAM, Germany)**
- **Prof. Arnaud Deraemaeker (ULB, Belgium)**
- **Dr Yves Van Ingelgem (Zensor, Belgium)**