

**NON DESTRUCTIVE
Testing and Evaluation
Materials & Structures**

TRAINING CATALOG

**Processes Reliability
& Safety**



A SCHOOL-WORKSHOP
an international
reference centre
for Non Destructive Testing
and Evaluation Training

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Welcome to ECND Academy



Study at Le Mans Université

Le Mans Université and its partners promoted the creation of ECND Academy - a workshop school in the field of Non Destructive Testing and Evaluation - and an international reference centre for the development of partnerships for training and employment with a view to consolidate an industrial sector of excellence.

ECND Academy strives to maintain industrial competitiveness at national and international levels.

Training future talents in new technologies is an essential role. ECND Academy's vision fully embraces the technological challenges that companies must face in the industrial sector. ECND Academy wishes to articulate a strategy of skills development in action. Innovative pedagogy and technological innovation are at the core of its methods.

ECND Academy wants to mark an important stage in the cooperation between public bodies and services, professional organisations, and

industrial and training stakeholders with a common objective to developing a unique and ambitious teaching tool.

ECND Academy aims to create a new training offer adapted to industrial expectations and to inspire a dynamic in which job training and qualifications are clearly anticipated to benefit employment and competitiveness for businesses.

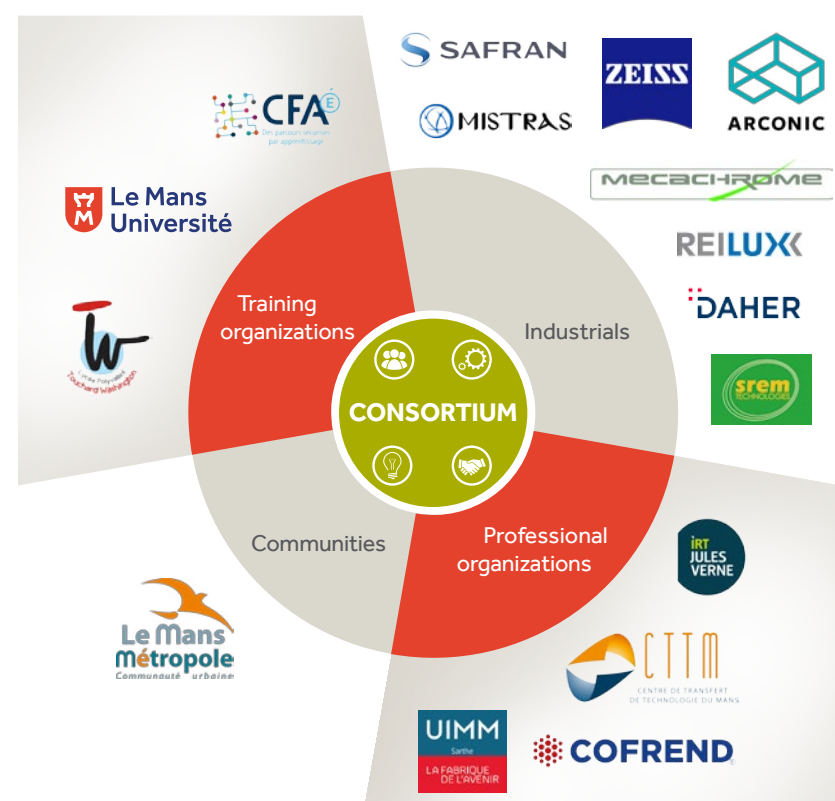
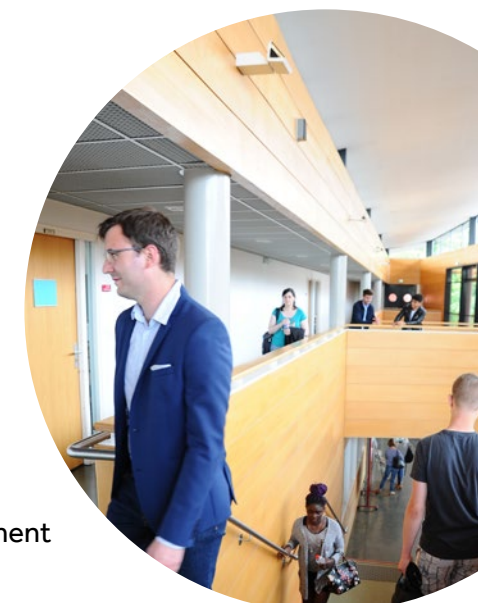
The objective being to draw on NDT&E research activities to create new training programs. Indeed, it is no longer possible to segregate basic training, continuing education and research if we want to favour employment.

Created in 1977 and located 200kms West of Paris, Le Mans Université is a multidisciplinary establishment with 11.000 students on two campuses : Le Mans and Laval.

With its **3 faculties, 2 Technological Institutes (IUT) and Engineering School (ENSIM)**, Le Mans Université offers courses and internationally recognised expert research in the field of Sciences and Technology but also in Humanities, Languages, Law, Economy, Management and Social Sciences. There are **15 Joint Research Units (UMR)**, 6 of these being associated with the CNRS.

The university offers **remarkable conditions** that contribute to our students well-being and success :

- an extensive course offering
- innovative training methods and formats
- individual coaching and support
- a thriving student life with special interest, cultural or sports groups
- modern and operational equipment



KEY FIGURES Le Mans Université

- 11 000** students
- 2 900** national qualifications delivered a year
- 15** laboratories
- 3** Faculties, **2** IUT, and **1** Engineering school
- 640** academic staff and researchers
- 3 000** internship a year
- 280** PhD students

Le Mans Université pursues its mission of lifelong learning by welcoming students in basic education as well as individuals returning to education or in vocational training.





Developing your NDT skills

[Short courses]

Getting basic training in NDT&E

- /// Basic scientific tools and instrumentation
- /// Materials and structures damage evolution
- /// Inspection Instruction
- /// Quality control and metrology in business settings
- /// NDT&E methods scope of application and limits

Using traditional NDT methods

- /// Ultrasounds - UT
- /// Radiography - RT
- /// Penetrant Testing - PT
- /// Magnetic Particle Testing - MT
- /// Eddy Currents Testing - ET
- /// Thermography - TT
- /// Shearography - ST

Monitoring ongoing technology evolution and adapt to new NDT methods

- /// Opto-acoustics
- /// TOFD - Time of Flight Diffraction
- /// Airborne ultrasounds
- /// Radiography - ionising radiation
- /// Nonlinear acoustics
- /// Sensors
- /// Guided waves
- /// EMATS - ElectroMagnetic Acoustic Transducer
- /// Signal processing for acoustic emissions



Academic qualifications in NDT&E

JOB	SKILLS	LEVEL	QUALIFICATION
NDT&E Assistant	<ul style="list-style-type: none"> Participate in the preparation of inspections Identify non-compliances with standards and regulations Set up and verify the operation of control apparatus Ensure the maintenance of control apparatus 	Secondary Education/ High School diploma	Special mention : NDT Assistant
NDT&E Technician Instrumentation Physics Technician	<ul style="list-style-type: none"> Implement a measurement chain Control the integrity of the manufacturing process Take appropriate corrective action Set up equipment and carry out inspections Interpret and evaluate test results Assess inspected items for agreement or refusal 	2-year University Diploma	NDT Technician Technical Diploma Instrumentation Physics Higher Technical Diploma Higher Technical Diploma
NDT&E Senior Technician	<ul style="list-style-type: none"> Apply frequently used NDT techniques in industry : ultrasounds, radiography, Eddy Currents, thermography, etc... Implement compliance tests on instrumentation and equipment Identify non-compliances with standards and regulations Organise and manage NDT instrumentation for the purpose of manufacturing, maintenance or accreditation 	3-year Bachelor's Degree	NDT&E Technical Degree
NDT&E Engineer	<ul style="list-style-type: none"> Master NDT&E methods used in industrial settings Perform tests and trials Carry out signal and image processing Analyse results and determine necessary adjustments to products and structures Perform technical inspections Manage NDT&E projects 	5-year Master's Degree	MEng Engineering Acoustics MS Acoustics MS Mechanics MS Applied Physics and Optics
Researcher	<ul style="list-style-type: none"> Define and develop research projects in NDT&E Contribute to increase and disseminate new knowledge in the field of NDT&E Transmit NDT&E theories and know-how through research and teaching 	8-year Doctorate	PhD

Preparation to  **COFREND** accreditation according to the certificate target level (1, 2 or 3)



NDT&E Assistant



[Special mention]

Secondary Education - High School diploma

Apprenticeship

The **NDT&E Assistant** prepares and organises tests during which products will be inspected without destruction. He watches over the formalisation of the necessary procedures and ensures that control apparatus is properly maintained (**Magnetic Particle Testing, Radiography**

Testing and Ultrasonic Testing). He has to organise his control station and follow safety instructions. This special mention at the end of a secondary education vocational curriculum is geared towards employment.

Public

Training is available to candidates aged 16 to 30 with an **apprenticeship contract**.

Pre-requisites

Candidates must hold a Secondary Education/High School Diploma.

Learning objectives

At the end of the course, students will be able to prepare and organise NDT tests in an industrial setting while following safety regulations.

Content

Duration : 12 months

Academic courses : French, Maths

Vocational courses : Metalwork, NDT Methods (Ultrasonics, Eddy Current, Radiography, Magnetic Particle, Penetrant Testing), practical applications of NDT testing.

Teaching methods

Block-release training to promote the application of theoretical principles in a real-life setting. The candidates will benefit from individual guidance and training during the cursus.

Assessment methods

Written and practical tests based on the COFREND (Confédération Française des Essais Non Destructifs) Level 1 certification reference framework.

Training staff

Secondary Education/High School teachers and NDT experts.

Contact

ecnd.academy@univ-lemans.fr



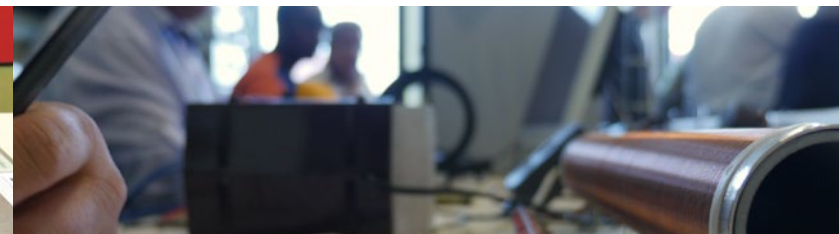
TARGETED SKILLS

- Participate in the preparation of inspections
- Identify non-compliances with standards and regulations
- Set up and verify the operation of control apparatus
- Ensure the maintenance of control apparatus

Fees

Full details available on Le Mans Université website : <http://www.univ-lemans.fr>

NDT&E Technician



[NDT Technical Diploma]

2-year University Diploma

Block-release training

The **NDT&E Technician diploma** is a university qualification that prepares workers in industrial sectors or job seekers for operational duties in the NDT field. The training programme is also designed to prepare students to take

the **COFREND/COSAC** (Confédération Française des Essais Non Destructifs/Comité Sectoriel Aérospatial de Certification) **Level 2 certification exams**. They acquire the necessary skills to implement a testing and control methodology.

Public

Training is available to all candidates in **basic or continuing education**.

Pre requisites

Candidates must hold a Secondary Education/High School Diploma in Sciences or Technology, preferably within the fields of Mechanics.

Metalwork, Metrology and Physics Instrumentation.

Candidates with a minimum of 12 months' work experience in an industrial setting will also be considered.

Tests and interviews will be carried out to determine candidate entry levels.

Admission requirements : application form and interview.

Learning objectives

At the end of the training, students will be able to :

- Determine the scope of application and the limits of frequently used NDT techniques in industry : penetrant testing, radiography X, Magnetic Particle Testing, thermography (infra-red, Eddy Currents, ultrasounds, etc.)
- Control the integrity of the manufacturing process : spare parts, sub-assemblies, assemblies
- Follow and monitor quality control with regards to regulations, processes and instructions
- Identify instances of non-compliance and variance with standards and take appropriate corrective action
- Set up equipment and carry out inspections
- Interpret and evaluate test results to assess inspected items for agreement or refusal
- Draw up compliance testing as well as quality control and tracking documents

Fees

Full details available on Le Mans Université website : <http://www.univ-lemans.fr>

Content

Materials Science

First NDT option : Radiography X or Ultrasounds

Second NDT option : Magnetic Particle Testing, Eddy Current Testing or Penetrant Testing

Inspection instruction

Quality and experimental methodology tools

Intermediate level in Technical English

Teaching methods

Conceptual and practical learning during lectures, tutorials and lab work.

Assessment methods

Written and practical tests on the basis of an ongoing assessment.

Integration of the COFREND (Confédération Française des Essais Non Destructifs) Level 2 certification reference framework.

Training staff

Training is delivered by both academic staff of Le Mans Université and professional NDT&E experts.

Contact

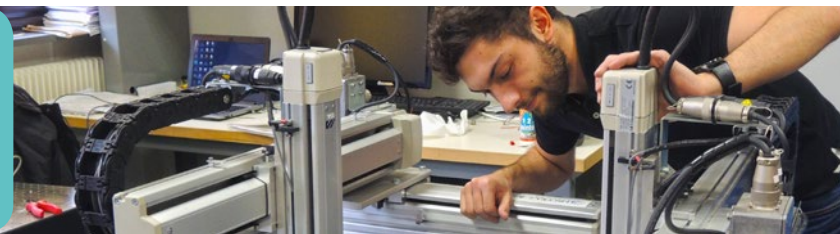
ecnd-academy@univ-lemans.fr



TARGETED SKILLS

- Implement a measurement chain
- Control the integrity of the manufacturing process
- Take appropriate corrective action
- Set up equipment and carry out inspections
- Interpret and evaluate test results
- Assess inspected items for agreement or refusal

Instrumentation Physics Technician



[Instrumentation Physics Diploma] 2-year Higher Technical Diploma

Apprenticeship/Block-release

The Instrumentation Physics Higher Technical Diploma is a 2-year university qualification aiming to train versatile senior technicians who can make measurements and interpret experimental data. Their body of knowledge

stems from diverse theoretical fields : physics, chemistry, materials science, electronics and computer science. Graduates find employment in various sectors of industry, research and services.

Public

Training is available to all candidates in **basic or continuing education**, classic or block-release courses.

Pre-requisites

Candidates must hold a Secondary Education/High School Diploma in Sciences, Technology or Engineering or a relevant diploma granting access to higher education.

Learning objectives

The training prepares senior technicians in the service fields of quality, metrology, instrumentation, tests, and in industrial manufacturing sectors (automotive, aeronautics, electronics, materials, environments, optics).

Content

1800 hours of training (360 hours of lectures, 668 hours of tutorials, 772 hours of lab work) and 300 hours of project-based work.

The training takes place over 4 academic semesters (2 years) and is based on 5 main subject areas :

Physics : understanding of phenomena in relation to sensors and being able to interpret test results.

Chemistry, chemical analysis and environmental analysis : understanding and mastering chemical analysis techniques and being able to interpret test results.

Materials science : understanding the specific properties of materials and mastering the main techniques of materials characterisation and control. Additional NDT module in Year 2 : Thermography, Magnetic Particle Testing and Ultrasonic Testing.

Metrology : understanding the fundamental concepts of physics measurements.

Instrumentation : understanding the diverse subject areas necessary to design and implement a measurement chain.

Fees

Full details available on Le Mans Université website : <http://www.univ-lemans.fr>

Teaching methods

Conceptual and practical learning during lectures, tutorials and lab work that aim to :

- Provide the proper integration of basic scientific concepts
- Help gain a practical know-how of professional practices
- Develop autonomy, responsibility and professional behaviour

Assessment methods

Written and practical tests on the basis of an ongoing assessment.

This Higher Education Technical Diploma leads to 120 ECTS (European Credit Transfer System) or 30 ECTS per validated semester.

Training staff

Academic staff and NDT experts.

Contact

iut-mp@univ-lemans.fr

TARGETED SKILLS

- Implement a measurement chain
- Control the integrity of the manufacturing process
- Take appropriate corrective action
- Set up equipment and carry out inspections
- Interpret and evaluate test results
- Assess inspected items for agreement or refusal



NDT&E Senior Technician

[NDT&E Technical Degree] Year 3 of Technical Degree

Apprenticeship or work/study contract - Face-to-face or Distance Learning

This course aims **to train NDT&E technicians at senior level who can implement most common NDT methods** in industry and services. Business sectors where product and structures quality, integrity or

maintenance is paramount have a vested interest in NDT&E, for instance: **aeronautics, shipbuilding, metallurgy, automotive, railways, nuclear, civil engineering, building, R&D and consultants.**

Public

Training is available to all candidates in **basic or continuing education, classic or block-release courses** (work/study or apprenticeship contract).

Pre-requisites

Candidates must hold a Technical Diploma, Higher Technical Diploma or equivalent qualification to apply for this course. An accreditation scheme is also available for those who can demonstrate that all or part of the course contents have been mastered through previous work experience.

Learning objectives

At the end of the course, students will be able to :

- Take COFREND (Confédération Française des Essais Non Destructifs) Level 2 NDT&E examinations
- Refer to the fundamental concepts in materials structure and properties (microstructure, assembly
- Refer to the fundamental concepts of physics and mechanics phenomena occurring in NDT&E
- Apply the most frequently used NDT methods in industry
- Draw on a general scientific and technological culture to tackle new work situations and develop the expertise to evolve within their sector of industry

Content

Tools for experimental methodology and quality
Structural and mechanical properties of materials
Electromagnetic and acoustic NDT methods

Radiographic NDT testing processes (X-Rays, Infra-Red, VIS)

Communication and socio-professional practices

Teaching methods

Conceptual and practical learning during lectures, tutorials and lab work.

Assessment methods

Written and practical tests on the basis of an ongoing assessment.

Integration of the COFREND (Confédération Française des Essais Non Destructifs) Level 2 certification reference framework.

Training staff

Academic staff and NDT experts.

Contact

Faculty of Science and Technology (admissions) :

Tel. +33 2 43 83 32 07/32 06
sco-sciences@univ-lemans.fr

TARGETED SKILLS

- Apply frequently used NDT techniques in industry : ultrasounds, radiography, Eddy Currents, thermography, etc...
- Implement compliance tests on instrumentation and equipment
- Identify non-compliances with standards and regulations
- Organise and manage NDT instrumentation for the purpose of manufacturing, maintenance or accreditation



Fees

Full details available on Le Mans Université website : <http://www.univ-lemans.fr>

Engineer in Vibrations, Acoustics, Sensors



Acoustic Research

[MEng Engineering Acoustics] 5-year Master's Degree

Apprenticeship contract/Block-release

From September 2018 new NDT&E option in Year 3

Le Mans Université Post-Graduate Engineering School (ENSIM) trains future engineers for 5 years in two fields (vibrations, acoustics and sensors and computer science) with an integrated preparatory cycle. The ENSIM aims to develop complementary skills and careers through these two specialisations

Public

Training is available to all candidates in **basic or continuing education**, classic or block-release courses.

Pre-requisites

Candidates must hold a Technical Diploma, Higher Technical Diploma or equivalent qualification to apply for this course. An accreditation scheme is also available for those who can demonstrate that all or part of the course contents have been obtained through previous work experience.

Learning objectives

The Vibrations, Acoustics and Sensors specialisation prepares universal engineers who can design and manage a number of measurement and modelling systems in a logical manner. There are two possible fields of specialisation : Vibrations and Acoustics (VA) and Micro-Systems and Optical Metrology (SPMI).

The system elements range from data capture to digital signal processing and comparison to a model in order to reach a useful diagnosis.

Content

Vibrations, Acoustics (VA) :

The programme is designed to gain the necessary scientific expertise enabling students to master all the stages in the design process for Acoustics and Vibrations Engineering.

Acoustics, vibration and vibro-acoustic metrology, digital modelling and simulation, data resetting, signature identification, diagnosis and decision-making, adjustment of passive and active control elements, and NDT&E assessment methods are key elements of the Acoustics Engineer's procedures.

Systems and procedures for the measuring and instrumentalisation (SPMI) :

this specialisation is particularly suited to students who want to design intelligent measurement systems : from the physical process of data collecting, storing and processing down to the decision-making process. Those who are drawn to the world of the infinitely small and are passionate about advanced technology will enjoy the syllabus.

in the same school.

Professional skills studied encompass the scope of business data processing : **sensors, digital modelling, instrumentation, embedded systems, human-machine interface**. The programme is open to candidates in continuing education.

Teaching methods

Engineering students are encouraged to develop collaborative skills in a context where practical work, project-based work and cross-disciplinary subjects (communication, business culture) benefit to all. On-the-job training periods are organised to enable students to gain professional experience :

- a 4-6 week work placement as a technician or senior technician
- a 6 months' end-of-year internship, in France or abroad

Assessment methods

Students are granted a validation of a year's study if both semesters are validated (30 ECTS for each semester). Individual modules are validated and the relevant ECTS granted if the weighted average of the assessments are equal or superior to 10/20.

Training staff

Academic staff and NDT experts.

Contact

ENSIM (admissions)
scolarité.ensim@univ-lemans.fr



TARGETED SKILLS

- Master NDT&E methods used in industrial settings
- Perform tests and trials
- Carry out signal and image processing
- Analyse results and determine necessary adjustments to products and structures
- Perform technical inspections
- Manage NDT&E projects

[MS Acoustics] 5-year Master's Degree

The **Master of Acoustics** provides a range of classes in the main fields of fundamental and applied acoustics : physical acoustics, non-linear and aero-acoustics, condensed matter acoustics, electro-acoustics,

vibro-acoustics, musical and building acoustics, perception and psycho-acoustics, physio-acoustics, experimental methods in acoustics, digital acoustics, etc...

Public

Training is available to all candidates in **basic or continuing education**.

Pre-requisites

Year-1 admission : candidates must hold an Engineering or an Acoustics Bachelor's Degree.

Year-2 admission : candidates must have completed Year-1 of a Master's Degree in Acoustics programme or similar : mechanics, physics, electronics, applied mathematics) or an Engineering Bachelor's Degree in similar fields of study. An accreditation scheme is also available for those who can demonstrate that all of the Year-1 course contents have been mastered through previous work experience.

Selection of candidates will be made on the basis of their application and student record.

Learning objectives

Students will be trained in the general and specialist fields of acoustics with a view to work in the business sector (R&D) and within research organisations.

During Year 1, they will learn the fundamentals of acoustics and will also be able to study specialist modules. Year 2 focuses on specialist teachings and includes an on-the-job period in a research lab or organisation, or in a business setting.

Content

Year 1 : a single programme designed to provide general knowledge of acoustics as well as specific modules for the different specialist areas of acoustics.

Year 2 : a common foundation programme: guided waves and modal approach, psychoacoustics, nonlinear acoustics, solids and fluids acoustics, signal processing, vibrations/ vibro-acoustics, experimental methods, digital methods in acoustics and vibrations.

Two specialisations with different modules :

Fluids : porous materials and periodic media acoustic properties, aero-acoustics.

Solids : opto-acoustics, ultra-sounds for NDT, digital methods for NDT (60 hours of NDT).

Teaching methods

Conceptual and practical learning during lectures, tutorials and lab work.

On-the-job training period in Year 2 between February and July.

Assessment methods

Written and practical tests on the basis of an ongoing assessment. Students need to obtain the validation of 120 ECTS over the 2 years.

Training staff

Academic staff and NDT experts.

Contact

Faculty of Science and Technology (admissions) :

Tel. +33 2 43 83 32 07/32 06
sco-sciences@univ-lemans.fr

Fees

Full details available on Le Mans Université website :
<http://www.univ-lemans.fr>



TARGETED SKILLS

- Master NDT&E methods used in industrial settings
- Perform tests and trials
- Carry out signal and image processing
- Analyse results and determine necessary adjustments to products and structures
- Perform technical inspections
- Manage NDT&E projects

Mechanic modelling and vibrations



[MS Mechanics] 5-year Master's Degree

The **Master of Mechanics with a specialisation in Mechanic modelling and vibrations** is designed to train future research and development engineers. Graduates who are interested in pursuing their cursus may apply to be considered for a PhD thesis.

Public

Training is available to all candidates in **basic or continuing education**.

Pre-requisites

Candidates must hold a Bachelor's Degree in a field relevant to the Master's Degree (mechanics, physics, engineering, etc...). An accreditation scheme is also available for those who can demonstrate that all or part of the course contents has been mastered through previous work experience.

Learning objectives

This Master's Degree prepares students to develop the following skills :

One of the main features of this Master Mechanics, Modeling in Mechanics and Vibrations (MMV), is to give future graduates a know-how in mechanics, materials, vibrations with a mastery of programming techniques (Matlab, Mathcad, Fortran, Python...), high-performance computing, as well as mastering modeling/simulation techniques with the use of digital tools, mesh, finite element codes, multi-physics tools (MSC Nastran, Adams, Abaqus, CCM + Star, SolidWorks, FlowWorks, Catia, STAR-CD, FLOsuite, Actran etc ..) and expertise in parallelism (hardware, software).

Students are trained to model physical phenomena (and coupled problems) in mechanics, vibrations, material properties, acoustics, thermal, fluid mechanics, electromagnetism, optics.

TARGETED SKILLS



- Master NDT&E methods used in industrial settings
- Perform tests and trials
- Analyse results and determine necessary adjustments to products and structures
- Perform technical inspections
- Manage NDT&E projects

Content

There is only one specialisation option Mechanics, Modeling in Mechanics and Vibrations (MMV), in this programme but many modules are shared with other Masters courses in the Science and Technology field and it is therefore possible to transfer to another course : for example, the Master of Acoustics, Electro-Acoustics, Physics and with the Post-Graduate Engineering Schools (ISMANS and ENSIM).

Teaching methods

Conceptual and practical learning during lectures, tutorials and lab work.

On-the-job training period in Year 2.

Assessment methods

Written and practical tests on the basis of an ongoing assessment.

Students need to obtain the validation of 120 ECTS over the 2 years.

Training staff

Academic staff and NDT experts.

Contact

Faculty of Science and Technology (admissions) :
Tel. +33 2 43 83 32 07/32 06
sco-sciences@univ-lemans.fr
master.mecanique@univ-lemans.fr

Fees

Full details available on Le Mans Université website :
<http://www.univ-lemans.fr>

Applied Physics and Physical Engineering

[MS Applied Physics and Optics] 5-year Master's Degree

The two specialisations of the Master of Applied Physics and Physical Engineering draw on research expertise in the following fields :

- Functional Nanomaterials and Nanostructures (**PNANO**).
- Innovative optical methods applied to the study of materials (**OAM**).

Public

Training is available to all candidates in **basic or continuing education**.

Pre-requisites

Candidates must hold a Bachelor's Degree in a field relevant to the Master's Degree (physics, engineering, etc...). An accreditation scheme is also available for those who can demonstrate that all or part of the course contents have been mastered through previous work experience.

Learning objectives

This Master's Degree prepares students to develop the following skills :

- Identify and develop data mining, collecting and analysis methods
- Present and explain scientific advances and research work
- Monitor and control the process and the progress of scientific experimentations and observations
- Participate to the development and the tuning of new products with digital tools

TARGETED SKILLS



- Master the NDT&E methods applied in an industrial environment
- Perform tests, analyzes datas and determine the product and procedure
- Analyze the choices and define technical orientation.
- Manage and co-ordinate NTD projects
- Lead technical expertise
- Carry out a technical expertise
- Coordinate and manage projects

Fees

Full details available on Le Mans Université website :
<http://www.univ-lemans.fr>

Content

PNANO is a high-level training program in the field of Nanosciences devoted to the physics of functional Nanomaterials and Nanostructures for electronics, photonics, and magnetism as well as their applications in devices operating in Nanotechnologies. The training includes theoretical concepts to describe and analyse the physical properties of matter at the nanoscopic and mesoscopic scales. It also provides a solid knowledge of advanced experimental methods of X-rays (Reflectivity, SAXS, GISAXS), microscopy tools (AFM, TEM, SNOM) and spectroscopic techniques at the forefront of technology and the development of thin film materials by physicochemical approaches or by vapor phase deposition and lithography of MEMS in a clean room environment.

OAM is dedicated to advanced optical properties of materials including : optical engineering, micro-nanostructures, optical functionalities and high-speed optical methods. There is a direct link with the opto-acoustics research pole of Le Mans Université (IMMM and LAUM) and the sensor engineering pole of ENSIM. Employment opportunities lie in the industrial field of R&D and it is also possible to pursue this cursus with a PhD.

Teaching methods

Conceptual and practical learning during lectures, tutorials and lab work.

On-the-job training period in Year 2 between February and July.

Assessment methods

This Master's Degree is registered to the French RNCP national qualification framework. Students need to obtain the validation of 120 ECTS over the 2 years.

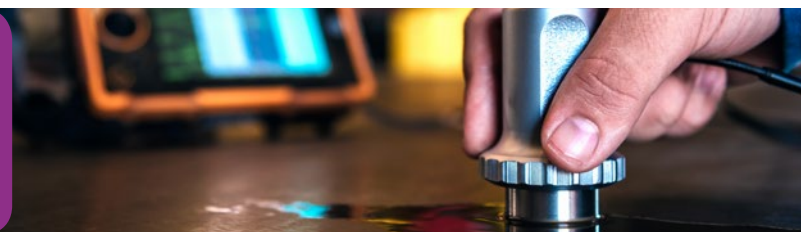
Training staff

Academic staff and NDT experts.

Contact

ENSIM (admissions)
scolarite.ensim@univ-lemans.fr

Doctorate thesis in the field of NDT&E



International outreach

8-Year PhD

Regional post-graduate schools for doctoral studies have been re-organised in order to provide specific local orientations as well as programme homogeneity for students. The local doctoral school draws from the expertise of Le Mans Université research laboratories to provide transversal scientific

projects and events, notably with a view to prepare students for professional integration. Le Mans Université research teams welcome around 260 doctoral students every year. The legal duration of a French doctoral degree is 3 years for students being granted specific funding.

Doctoral schools and NDT

Le Mans Université doctoral training offer is provided in 10 different interregional locations of which 2 are directly linked to NDT :

- **ED SPI** - Engineering Sciences
- **ED 2M** - Matter, Molecules and Materials

Le Mans Doctoral School

In full coordination with the regional centre, Le Mans doctoral school :

- guarantees transversal campus-wide scientific events
- encourages close links between PhD students, their tutors and research units
- manages the coordination of the specific doctoral schools (ED) on site

It has an administrative centre and a consultative body composed of representatives of different schools, research units and doctoral students.

Missions

- **Follow-up**
- **Transversal courses**
- **Doctoral contracts**
- **National and international support**
- **Event organisation**

Contact

poledoctoral@univ-lemans.fr



TARGETED SKILLS

- **Master NDT&E methods used in industrial settings**
- Perform tests and trials
- Analyse results and determine necessary adjustments to products and structures
- Perform technical inspections
- Manage NDT&E projects

Fees

Full details available on Le Mans Université website : <http://www.univ-lemans.fr>

Le Mans Université

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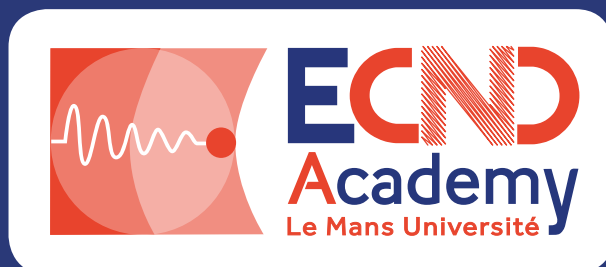
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Non Destructive Testing and Evaluation

with financial support from the Program of Investments for the future



ECND Academy

Le Mans Université
Boulevard Pythagore
72 085 LE MANS Cedex 9

Contact - Accueil :
Mélanie Couëllier
Tél : +33 (0)2 43 83 36 42

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