

## LECTURERS

### Main

Eduardo Fortunato  
José Nuno Varandas  
Madalena Barroso  
Maria João Falcão Silva  
Marta Carvalho  
Paula Couto  
Simona Fontul  
Tiago Silva  
Zuzana Dimitrovová

### Invited

Ana Maria Fonseca  
André Marques Paixão  
Elsa Lourenço Alves  
Filipe Telmo Jeremias  
Joana Carreto  
João Bilé Serra  
José Delgado Muralha  
Luís Oliveira Santos

Classes also include lectures given by personalities of recognized merit in the field.

## STUDY SCHEDULE

Training will be given online on Zoom platform in post working hours, on Fridays from 5pm till 9pm and on Saturdays from 9am GMT. The end of training on Saturdays will depend on the selected optional units, however, the number of hours per week will be 10 hours.

## STUDY FEE

1500€ (only for applications until 30/6), 1750€

## APPLICATION PERIOD

From May 10, 2024, to September 1, 2024  
Vacancies: 25

## ADMISSION - MINIMUM REQUIREMENTS

- 1st cycle of higher education in engineering sciences.
- Specialization in civil engineering, or mechanical engineering or other considered related.
- Exceptions will be analyzed individually.

## RANKING - SELECTION METHOD

- Academic education.
- Professional experience.
- Possible selection interview.

# REHABILITATION OF RAILWAY INFRASTRUCTURES

## POSTGRADUATE STUDY - 5<sup>th</sup> EDITION

## INSTITUTIONS

### ORGANIZED BY



LABORATÓRIO NACIONAL  
DE ENGENHARIA CIVIL

### SUPPORTED BY



Infraestruturas  
de Portugal

### COORDINATOR

Zuzana Dimitrovová  
[zdim@fct.unl.pt](mailto:zdim@fct.unl.pt)  
Eduardo Fortunato

### SCIENTIFIC COMMITTEE

Zuzana Dimitrovová (FCT NOVA)  
Eduardo Fortunato (LNEC)  
Paula Couto (LNEC)

### CONTACT

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[zdim@fct.unl.pt](mailto:zdim@fct.unl.pt)

<https://sites.fct.unl.pt/postgraduate-study-rehabilitation-railway-infrastructure/>

[https://execed.fct.unl.pt/en/post\\_graduations/postgraduation-rehabilitation-of-railway-infrastructure/](https://execed.fct.unl.pt/en/post_graduations/postgraduation-rehabilitation-of-railway-infrastructure/)

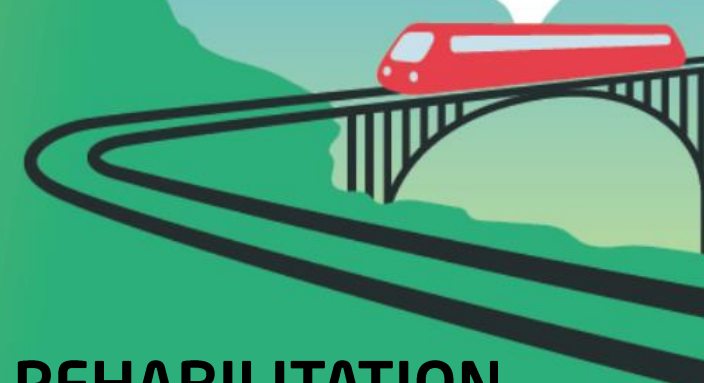
# NOVA

NOVA SCHOOL OF  
SCIENCE & TECHNOLOGY

# REHABILITATION OF RAILWAY INFRASTRUCTURES

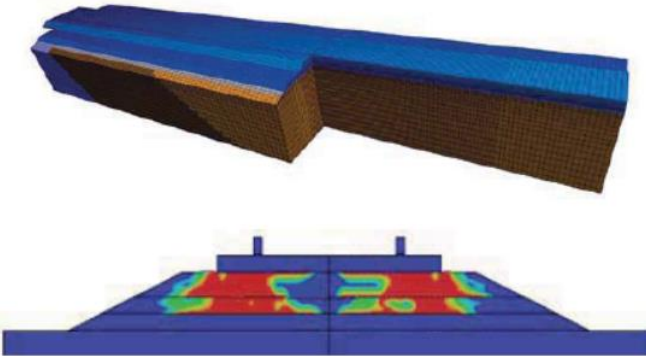
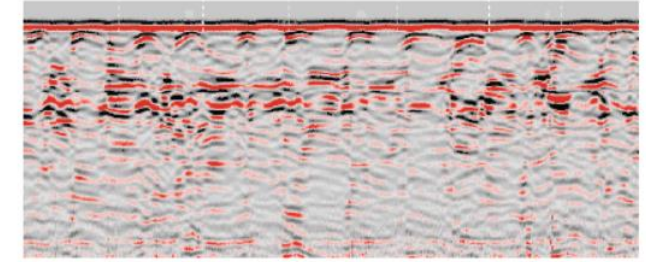
POSTGRADUATE STUDY

5<sup>th</sup> EDITION



# REHABILITATION OF RAILWAY INFRASTRUCTURES

## POSTGRADUATE STUDY



OPTIONAL MANDATORY

### OBJECTIVES

The course aims to provide trainees with the acquisition of a set of multidisciplinary knowledge, in the area of ballasted railway track rehabilitation, theoretical and practical, enriched by lectures given by recognized personalities in this area.

- Fundamental concepts about railway inspection and rehabilitation techniques.
- The use of computational tools is promoted in several curricular units.
- The focus on the use of new materials, such as geosynthetics, is also supported.

### COMPETENCES

Trainees should acquire the ability to assess the current state of the railway, propose efficient and effective rehabilitation measures, and evaluate their additive value in terms of improving the dynamic performance of the track. The knowledge acquired will provide complementary competence to current Pre-Bologna Graduates, or Post-Bologna Masters. The course is also beneficial for students who only finish the 1st cycle of higher education.

### CAREER OPPORTUNITIES

The study aims to provide specific training useful to the railway sector, which will allow the graduates to access the labour market more easily or to continue on a research and development program. The study is also directed to professionals to improve their current qualifications.

### STUDY PLAN

The necessary number of passed credits to obtain the Diploma of the course is 16 ECTS.

| CURRICULAR UNITS  | TRAINEES WORK |         | CREDITS |
|---|---------------|---------|---------|
|   | TOTAL         | CONTACT | ECTS    |
| Railway Rehabilitation Techniques                                     | 98            | 28      | 3.5     |
| Railway Inspection  | 98            | 28      | 3.5     |
| Geosynthetics in Railway Rehabilitation                               | 42            | 12      | 1.5     |
| Dynamic and Long-Term Behavior of the Railway                         | 56            | 16      | 2       |
| Models for Calculating the Dynamic Performance of the Railway         | 70            | 26      | 2.5     |
| BIM Methodology and Technical Databases                               | 42            | 12      | 1.5     |
| Signal Processing for Condition Assessment                            | 42            | 12      | 1.5     |
| Decision Support Methods  | 42            | 12      | 1.5     |
| Numerical Simulation of Railway Accidents for Passive Safety Analysis | 42            | 12      | 1.5     |

OPTIONAL MANDATORY