

**SMART**

**Sustainable Maintenance and Rehabilitation  
of Railway Track**

**Autumn School**

**Place:** NOVA School of Science and Technology | NOVA FCT  
Department of Civil Engineering

and

**LNEC – National Laboratory of Civil Engineering**

**Rooms:** DEC 4.17, 4.22, 3.14 and LNEC

**Schedule:** 19<sup>th</sup> of November: 9:50-17:00  
20<sup>th</sup> of November: 10:00-17:00  
21<sup>th</sup> of November: 9:00-18:10

**Mode:** Lectures given in person  
Possibility of remote participation

**Detailed program on next pages**

Information:

If you need more details or want to participate remotely,  
kindly contact Zuzana Dimitrovová ([zdim@fct.unl.pt](mailto:zdim@fct.unl.pt))



Promoter \_\_\_\_\_

Partners \_\_\_\_\_



**Zuzana Dimitrovová**  
IDMEC



**Jian Dai**  
Oslo Metropolitan  
University (OsloMet)



**Tiago Silva**  
NOVA.ID.FCT



**Piotr Koziol**  
Cracow University of  
Technology (CUT)

19-Nov	
Opening, (DEC, Sala 4.22)	09:50 - 10:00
Signal Processing for Condition Assessment Tiago Silva, (DEC, Sala 4.22) UNIDEMI, DEMI, NOVA FCT	10:00 - 12:00
Lunch break	12:00 - 13:30
Laboratory Visits (Geotechnics, Geosynthetics and Railway Inspection) Madalena Barroso, Simona Fontul, (LNEC) LNEC	14:00 - 17:00
20-Nov	
Simulation-assisted Railway Track and Vehicles Diagnostics Piotr Koziol, (DEC, Sala 4.22) CUT, Krakow, Poland	10:00 - 11:00
Deformation Tests and Analysis of Selected Materials used in Road and Railway Applications Jarosław Górszczyk, Konrad Malicki*, (DEC, Sala 4.22) CUT, Krakow, Poland	11:00 - 12:00
Lunch break	12:00 - 13:30
Geotechnical Aspect Related to Transport Infrastructure Chuangxin Lyu, (DEC, Sala 4.22) OsloMet, Oslo, Norway	13:30 - 15:00
Numerical Simulation of Railway Accidents for Passive Safety Analysis Ana Patrícia Martins, (DEC, Sala 3.14) UNIDEMI, DEMI, NOVA FCT	15:00 - 17:00



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21-Nov	
Simplified Models for Calculating the Dynamic Performance of the Railway Zuzana Dimitrovová, (DEC, Sala 4.22) IDMEC & DEC, NOVA FCT	09:00 - 10:30
Project Decision Support Methods Maria João Falcão, (DEC, Sala 4.22) LNEC	10:30 - 12:30
Lunch break	12:30 - 14:00
BIM for Railway Projects Paula Couto, (DEC, Sala 4.17) LNEC	14:00 - 16:00
Dynamic and Long-Term Behavior of the Railway José Nuno Varandas, (DEC, Sala 4.17) CERIS, DEC, NOVA FCT	16:00 - 18:00
Closing, (DEC, Sala 4.17)	18:00 - 18:10

**Additional information:**

Lesson on 20/11, 15-17h will use **LS-DYNA** software; the software will be installed on PCs available in the room.

Some other lessons will use software **Octave** (open source). Kindly bring your own laptop with this software already installed for the lecture. (19/11, 10-12h; 21/11, 9-10:30 and 16-18h).



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