



## RemPlex & ENVIRONET Seminar

August 13, 2024

# A Panel Discussion of Workforce Development in the Environmental Remediation Field



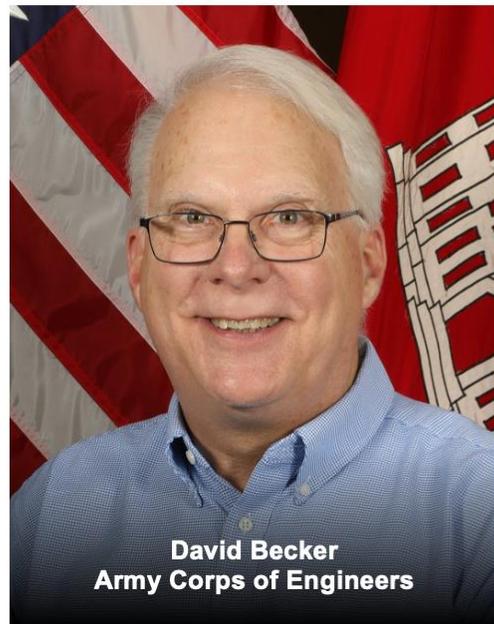
**REMPLEX**  
CENTER FOR THE REMEDIATION  
OF COMPLEX SITES  
@PNNL



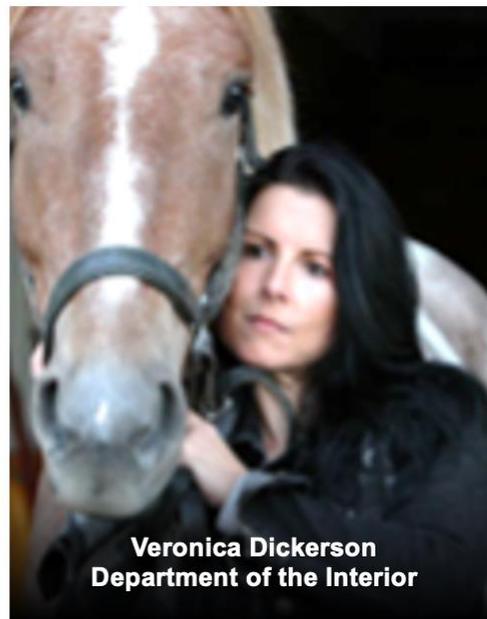
PNNL is operated by Battelle for the U.S. Department of Energy



# Today's Panelists



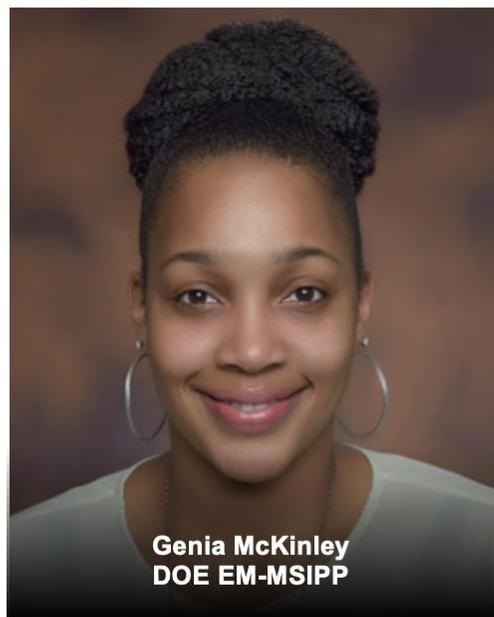
**David Becker**  
Army Corps of Engineers



**Veronica Dickerson**  
Department of the Interior



**Maria de Lurdes Dinis**  
University of Porto



**Genia McKinley**  
DOE EM-MSIPP



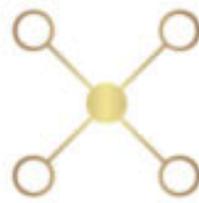
**Maria Naydenova**  
IAEA Curie Programme



**Evangelina Shreeve**  
PNNL STEM Ed/Inclusion



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# MINDER

## MSc. Master Programme on Nuclear Decommissioning and Environmental Remediation

<https://www.up.pt/minder/web/index.html>

### Erasmus Mundus Joint Master Design Measures (EMJMD)

**Maria de Lurdes Dinis** (mldinis@fe.up.pt)

FEUP - Faculty of Engineering,  
University of Porto ([www.fe.up.pt/](http://www.fe.up.pt/))

CERENA - Centre for Natural Resources and the Environment

([cerena.ist.utl.pt/](http://cerena.ist.utl.pt/))

Scientific Coordinator CERENA-FEUP



## ***MINDER - International Erasmus Joint Master on Nuclear Decommissioning and Environmental Remediation***

### ***EMDM (Design Measures)***

**1<sup>st</sup> step** – February 2022 submission to EC for the EMDM

Approved – Rate 93 % 

**2<sup>nd</sup> step** – November 2023 and January 2024 – submission for accreditation in each national education agency

**3<sup>rd</sup> step** – February 2025 submission to EC for the implementation funds during 74 months

#### **Proposal built upon previous experiences:**

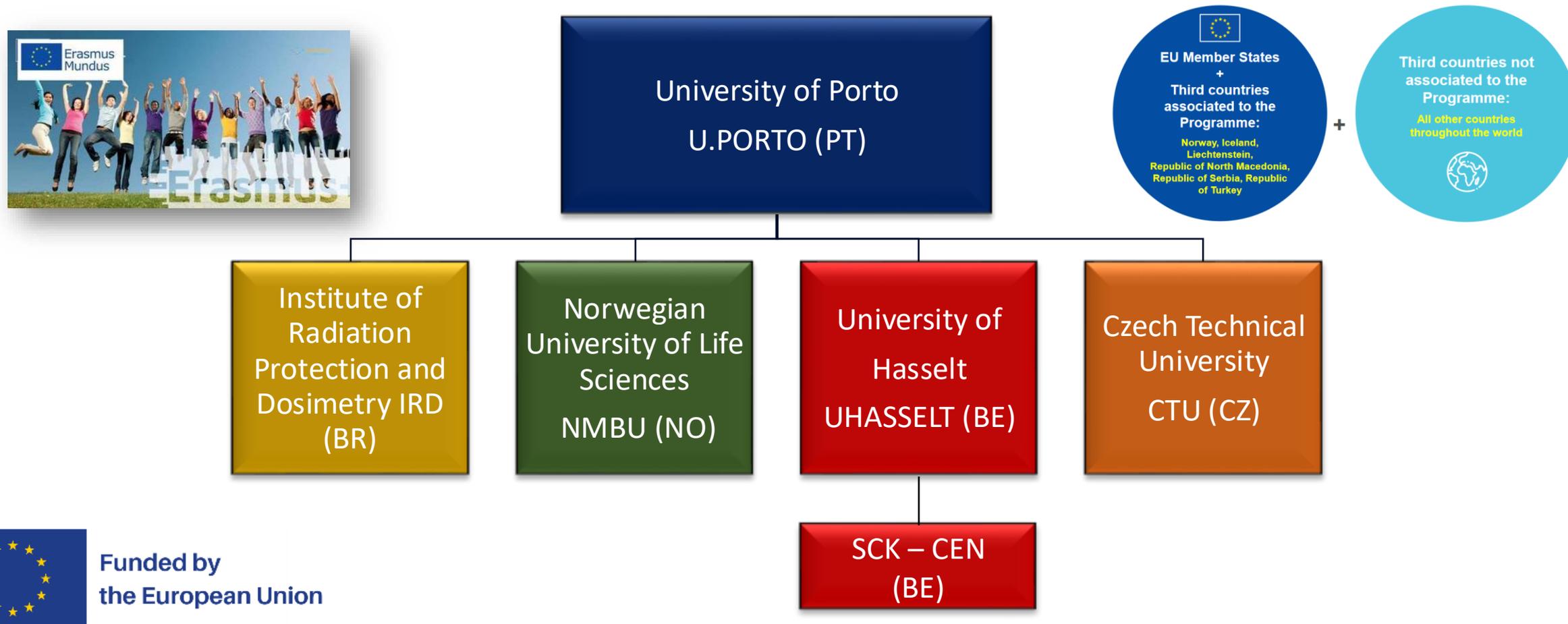
- Training events at **Argonne National Laboratory** together with the **IAEA (since 2008)**;
- Activities of **Working Group #3 of the IAEA CIDER Project**;
- IAEA TC **INT2020 Project on D&ER**.



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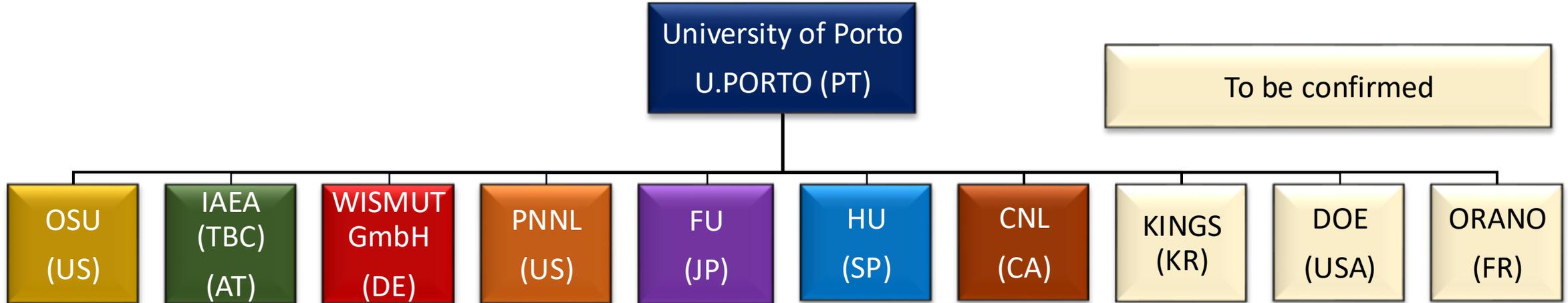
## Consolidation of the MINDER consortium (full partners) for the design and curriculum development (2023)

Europe (Portugal, Belgium, Norway), USA, Latin America (Brazil).



## Consolidation of the MINDER Associate/collaborative partners (2023)

Europe, Asia, Canada, USA



## Consortium set-up: academic, scientific excellence and high-quality education

- Curriculum dedicated to D&ER topics: common topics and specific tracks dedicated to DECOM and ER.



(minder@fe.up.pt)



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This Project has received funding from the European Union under the Erasmus Mundus Joint Masters - ERASMUS-EDU-2022-EMJM-DESIGN, Type of action: ERASMUS-LS, Proposal number: 101082655.

#### Programme:

- The master's programme has a workload of 120 ECTS credits: a taught part of 90 credits and a dissertation of 30 credits.
- The study programme is full-time and will run over 24 months. It will be taught by staff of the five partner institutions and by high-profile visiting scholars and experts from industry.
- Students will take courses in at least three countries with two alternative mobility tracks.
- There are two common semesters for all students (1st and 2nd semester); in the 3rd semester, students can choose between the Environmental Remediation Track or Decommissioning Track and in the 4th semester, students will develop the dissertation under the supervision of professors from the partner institutions supported by the associated partners and companies.
- Each partner's master's degree must be fully recognized and accredited by national accreditation agencies according to national procedures. MINDER consortium started this process in November 2023.



<https://www.up.pt/minder>

The programme is organized in a global learning environment, where the diverse cultural background of students, that will be recruited at a global level, combined with mobility in at least three different countries and teachers from different EU and extra-EU countries.

The programme's strength lies in the collaborative efforts of the five Higher Education Institutions involved: UPORTO, NMBU, IRD, HASSSELT, and CTU. This mixture makes the MINDER unique in learning and life experience, allowing the students to experience diverse educational, cultural and social environments and enhance their social competencies.



#### Study Plan:

ECTS	Semester 1 - IRD (Brazil) or (NMBU, Norway)
10	Radiation Protection
5	Nuclear, Radiological and NORM-Related Facilities
5	Introduction to Decommissioning and Environmental Remediation
10	Radionuclide Fate and Transport in the Environment

ECTS	Semester 2 - UHASSELT (Belgium)
6	Circular Environmental Technologies
6	Decision Support for Sustainability
4	Novel Technologies for the Energy Transition
4	Concepts of Data Science
5	Machine Learning
3	Globalization and Sustainable Development
3	Environmental Policy

ECTS	Semester 3 – Track Env. Remediation (FEUP, Portugal)
6	Investigation and Characterization for Environmental Remediation
6	Policy, Strategy and Licencing Process for Env. Remediation
6	Environmental Remediation Technologies
6	Planning and Implementation of Env. Remediation Projects
6	Waste Management in Environmental Remediation Projects

ECTS	Semester 3 – Track Decommissioning (CTU, CZ)
6	Installation Characterization
6	Policy, Strategy and Licensing Process for Decommissioning
6	Decommissioning Technologies
6	Planning and Implementation of Decommissioning Projects
6	Waste Management in Decommissioning Projects

ECTS	Semester 4 – Dissertation Research (IRD, NMBU, UHASSELT, UPORTO, CTU)
30	Dissertation

 <https://www.facebook.com/profile.php?id=61555679378088>

 [https://www.instagram.com/minder\\_uporto/](https://www.instagram.com/minder_uporto/)

#### Collaborating Institutions and Companies:

MINDER Master programme has developed active cooperation with various partners: industries, laboratories, research centres and networks. This cooperation, beyond scholars, researchers and professionals from several Higher Education Institutions, allows students to get in touch with the professional world dealing with concrete study cases and work approaches that will open new opportunities (current list below, to be regularly updated):

- Nuclear Research Center (SCK-CEN, Belgium);
- International Atomic Energy Agency (IAEA, Austria);
- Oregon State University (OSU, USA);
- Pacific Northwest National Laboratory (PNNL, USA);
- Wismut GmbH (WISMUT, Germany).

#### Scholarships:

The EMJM programme provides several scholarships for both EU and non-EU students. These are awarded on a competitive basis. Application for enrolment and scholarships is made directly through the programme's secretariats. Programme country students may be eligible for an Erasmus Student Mobility grant. For more information, please consult the [Erasmus+ pages](#). The following rules apply for the award of scholarships:

- Grant of 1.400€ (one thousand, four hundred euros)/month for each scholarship holder. This scholarship will be transferred to the holder's account and will be managed by her/him to support all travel and living expenses for the schedule of each edition of MINDER (2 Years = 24 months). This amount will also have to be used to support the costs for a visa or any other residence authorisation or permit that may be required for permanence in the countries of the partner universities.
- The Erasmus Mundus grant considers the award of 15 scholarships in each edition, with the restriction that no more than 10% of the scholarships will be awarded to students from the same nationality (this is considered as a target for the complete four editions, permitting some variation from edition to edition according to the decision of the Executive / Academic Committee of MINDER).

 More info?

Contact us:  
Prof. Maria de Lurdes Dinis (Programme Director);  
[mldinis@fe.up.pt](mailto:mldinis@fe.up.pt) | [minder@fe.up.pt](mailto:minder@fe.up.pt)

## Curriculum developed (<https://www.up.pt/minder>)

1 <sup>st</sup> YEAR		
1 <sup>st</sup> Semester (NMBU or IRD)		
		ECTS
	M11 - Radiation Protection	10
	M12 - Nuclear, Radiological and NORM-Related Facilities	5
	M13 - Introduction to Decommissioning and Env. Remediation	5
	M14 - Radionuclide Fate and Transport in the Environment	10

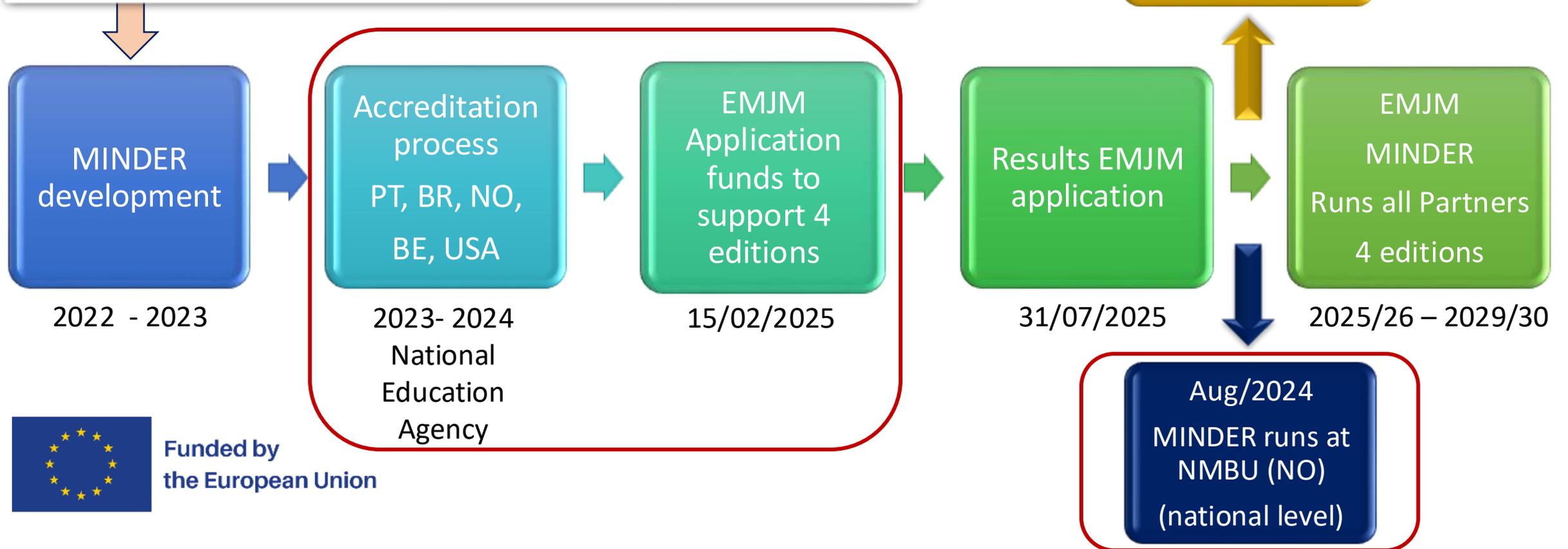
2 <sup>nd</sup> Semester (UHASSELT)		
		ECTS
	M21 - Circular Environmental Technologies	6
	M22 - Decision Support for Sustainability	6
	M23 - Novel Technologies for the Energy Transition	4
	M24 - Concepts of Data Science	4
	M25 - Machine Learning	5
	M26 - Globalization and Sustainable Development	3
	M27 - Environmental Policy	3

2 <sup>nd</sup> YEAR		
1 <sup>st</sup> Semester – Track Env. Remediation (UPORTO)		
		ECTS
	M31 - Investigation and Characterization for Env. Remediation	6
	M32 - Policy, Strategy and Licencing Process for Env. Remediation	6
	M33 - Environmental Remediation Technologies	6
	M34 - Planning and Implementation of Env. Remediation Projects	6
	M35 - Waste Management in Env. Remediation Projects	6

1 <sup>st</sup> Semester – Track Decommissioning (CTU)		
		ECTS
	M31 - Installation Characterization	6
	M32 - Policy, Strategy and Licensing Process for Decommissioning	6
	M33 - Decommissioning Technologies	6
	M34 - Planning and Implementation of Decommissioning Projects	6
	M35 - Waste Management in Decommissioning Projects	6

2 <sup>nd</sup> YEAR	
2 <sup>nd</sup> Semester	
	ECTS
M41 - Dissertation	30

- **Curriculum and qualification description:** objectives, mobility paths, procedures for admission, issues related to student's administration.
- **Syllabuses and its content materials:** learning outcomes and competences, program, teaching methods and learning activities, assessment (21 course forms).
- **Teaching staff description** (24 teaching staff forms).





## Welcome to **MINDER** project

Erasmus Mundus Joint Master Degree in Nuclear Decommissioning and Environmental Remediation

<https://www.up.pt/minder>



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