

HOW TO PARTICIPATE

In order to apply for this course please click the link below:

<https://www.polimi.it/en/education/specializing-masters-and-postgraduate-programmes/master-detail/569> and insert your application as requested.

The deadline for the application is May 21, 2026.

Admission to the course follows a first-come, first-served basis.

Minimum number of participants: **10**

Maximum number of participants: **40**

If the minimum number participants is reached, the course will start as planned. If not, the course will be postponed or cancelled. This communication will be sent to participants by **May 25, 2026**, along with detailed instructions on how to proceed with the payment of the registration fee.

If necessary, the Direction may modify the programme, the Faculty and the course teaching method.

COURSE WITHDRAWAL

In case of proven and serious circumstances preventing from participating to the course, the participant has got two options:

- 1) To obtain the refund of the registration fee, provided that the subject student has duly informed the course staff by May 31, 2026.
- 2) To keep on hold the registration fee, assuming the relevant amount is used for the following course session. In line with the above, this option is viable, as long as the course staff has been properly informed, again by May 31, 2026.

Politecnico di Milano is only liable for the refund of the registration fees already honored.

The Institution/Company is allowed to replace a participant with another employee before the course starts, assuming the course staff has been promptly informed accordingly.

The Department of Energy non-institutional training activities and special projects for university teaching comply with the UNI EN ISO 9001-2015 standard.

ORGANIZING INSTITUTION

Department of Energy – Politecnico di Milano

Co-ORGANIZING INSTITUTION

RCCS, Heriot Watt University

COURSE DIRECTOR

Prof. Giampaolo Manzolini, Politecnico di Milano

COURSE CO-DIRECTOR

Prof. Davide Bonalumi, Politecnico di Milano

Prof. Mijndert van der Spek, Heriot Watt University

DURATION & MODE OF DEPLOYMENT

Sunday 7th – Tuesday 9th June 2026

On campus attendance

LOCATION

Politecnico di Milano | Candiani-Durando Campus

REGISTRATION FEE

No registration fee required. Course funded by POLIMI as part of the INITIATE Union's Horizon 2020 Europe research and innovation project and by the COST Action CA21127 – Techno-Economic Analysis of Carbon Mitigation Technologies (TrANsMIT).

COURSE PROGRAM CHAIRS

Prof. Giampaolo Manzolini, Politecnico di Milano

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COURSE STAFF

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DI ENERGIA

Summer School Advanced Topics in CCUS and CDR Technology Assessment

07-09 June, 2026

The INITIATE project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 958318



COST Action CA21127 – Techno-Economic Analysis of Carbon Mitigation Technologies (TrANsMIT)



TARGET AUDIENCE

The School is open to:

- PhD students
- Early-stage researches/engineers (upon availability of seats)

SELECTION PROCESS

PhD students from POLIMI are automatically enrolled.

In case more than 40 PhD students apply, the application will be revised and confirmed by the organizing committee, giving priority to PhD students and, if needed, assessing the coherence of the research activities with the topics of the Course and the motivation letter.

TRAINING FORMAT

Lectures will be offered by Italian and international professors expert of Techno-economic and Life cycle assessment, as well as process modelling. Assessment application, Q&A and discussion session will conclude each seminar.

Teaching Language: **English**

COURSE CONTENTS

The short course on the techno-economic and environmental assessment of CO₂ capture and utilisation (CCU) and Carbon Dioxide Removal (CDR) technologies is designed to provide participants with a comprehensive introduction to the advanced concepts and practical tools required for evaluating CCU/CDR systems. The course begins with an overview of key performance indicators (KPIs), including capture efficiency, energy penalty, specific CO₂ avoided, cost of CO₂ captured, and life cycle greenhouse gas emissions. Participants will learn how to define and calculate these KPIs, understanding their relevance in both academic and industrial contexts. The theoretical foundation will be complemented by practical sessions in which attendees apply the assessment framework to specific, well-defined use cases. Through guided exercises, participants will assess the techno-economic feasibility and environmental impacts of these applications, using advanced methodologies such as process simulation and life cycle assessment (LCA). By the end of the course, students will be able to critically evaluate various CCU/CDR options, interpret benchmark data, and communicate results using established KPIs. This training is particularly relevant for researchers, engineers, and decision-makers aiming to contribute to the development and deployment of sustainable CO₂ management solutions. pre-existing knowledge of standard LCA and/or TEA are expected.

CERTIFICATE OF ATTENDANCE

At the end of the Summer School, the participants will receive a certificate of attendance, provided that they have attended at least 70% of the lectures.

AGENDA - TBC

Time	7 JUNE
09:00	Manzolini – van der Spek
11:00	Welcome coffee - registration
11:00	Manzolini - van der Spek
13:00	Presentation of the summer school, logistic aspects, Introduction to the projects (INITIATE/ TRANSMIT)
	Lunch
14:30	Manzolini - Zecca
16:15	KPI of CCUS
	Coffee break
16:30	Manzolini - Zecca
18:00	case studies of CCUS
Time	8 JUNE
09:00	van der Spek - Bonalumi
11:00	TEA: Location
11:00	van der Spek - Bonalumi
13:00	Prospective TEA: background systems
	Lunch
14:30	van der Spek - Bonalumi
16:15	Prospective TEA: foreground systems
	Coffee break
16:30	van der Spek - Bonalumi
18:00	Prospective TEA: integration

Time	9 JUNE
09:00	Christian Bauer - Tom Terlouw
11:00	LCA: Location
11:00	Christian Bauer - Tom Terlouw
13:00	Prospective LCA: background systems
	Lunch
14:30	Anne Ottenbros
16:15	Prospective LCA: Application
	Coffee break
16:30	Davide Bonalumi
18:00	Prospective LCA: integration

ECTS/CFU CREDITS & EXAM MODE

Attendance at the Summer School allows the acquisition of 3 ECTS credits, recognized upon the exam completion (for PoliMi PhD students). The exam consist in a short review paper or a numerical model application to a case study of interest to the PhD student (topic and deadline to be agreed with the teacher) and it is part of the PhD program in Energy and Nuclear Science and Technology.

LECTURERS

Giampaolo Manzolini | Politecnico di Milano
Mijndert van der Spek | Heriot-Watt University
Davide Bonalumi | Politecnico di Milano
Nicola Zecca | Politecnico di Milano
Christian Bauer | Paul Scherrer Institute
Tom Terlouw | Paul Scherrer Institute
Anne Ottenbros | Radboud University