



## COURSE: MULTI-PHYSICS MULTI-SCALE SIMULATION WITH EMBEDDED HIGH-TO-LOW FIDELITY INFORMATION

📅 Since : 5/15/23 | 📅 Up to : 5/19/23 | 📍 Campus of Valencia

Pre-registration: Since 5/8/23

Promoted by :

Dpto. de Ingeniería Química y Nuclear

Lead by :

Gumersindo Jesús Verdú Martín



Certification  
Achievement

Course  
modality  
FACE-TO-FACE

Course  
2022-2023




ECTS  
2

Campus  
Valencia

20 h  
On-campus

0 h  
Online

### Course modality

| Face-To-Face  | Online   | Live broadcast   |
|---|--|--|
| <br>20 hours | <br>0 hours | <br>0 hours |

Venue :

Aula- Seminario Dpto. Ingeniería Química y Nuclear  
Edificio 5I Universitat Politècnica de València

Timetable :

Morning  
Lunes 15 de mayo: 9:00 - 13:00.  
Martes 16 de mayo: 9:00 - 13:00.  
Miércoles 17 de mayo: 9:00 - 13:00.

Jueves 18 de mayo: 9:00 - 13:00.  
Viernes 19 de mayo: 9:00 - 13:00.

| Fee    | Target         | Deadlines | Since | Up to |
|--------|----------------|-----------|-------|-------|
| 0,00 € | General public | -         | -     | -     |

#### Fees comments:

0,00 € - Público en general

### Objectives

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After completing the course, students will be able to apply Predictive Modeling and Simulation and High-to-Low (Hi2Lo) Model Fidelity Information in models of core reactor physics, core thermahydraulics and core fuel performance

### Who this course is for

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Nuclear Engineering students and profesionales.

### Previous knowledge

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Statistical concepts and nuclear engineering

### Trainers

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**Maria Avramova**

Expert

**Kostadin Ivanov**

Expert

### Didactic Methodology and assessment procedures

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Practical and theoretical lessons

### Content

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1. Introduction to Predictive Modeling and Simulation (M & S)
2. Classification of M&S Approaches
3. High-to-Low (Hi2Lo) Model Fidelity Information Schemes
4. Verification, Validation and Uncertainty Quantification (VUQ) of M&S and Hi2Lo
5. Core Reactor Physics (RP) M&S
6. Novel High-Fidelity and Traditional RP M&S
7. Core Thermal-Hydraulics (TH) M&S
8. Novel High-Fidelity and Traditional TH M&S
9. Hi2Lo Schemes in RP
10. Multi-Scale Uncertainty Propagation in RP
11. Hi2Lo Schemes in TH
12. Multi-Scale Uncertainty Propagation in TH

- 13. Core Fuel Performance (FP) M&S
- 14. Novel High-Fidelity and Traditional FP M&S
- 15. Core Multi-Physics (MP) M&S
- 16. Novel High-Fidelity and Traditional MP M&S
- 17. Hi2Lo Schemes in FP
- 18. Multi-Scale Uncertainty Propagation in FP
- 19. Hi2Lo Schemes in MP
- 20. Multi-Scale Uncertainty Propagation in MP

## Training project

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### LIFELONG LEARNING MASTER IN RADIOLOGICAL PROTECTION IN RADIOACTIVE AND NUCLEAR FACILITIES

🕒 Semi-Assistance | 📅 18 October 2022 | 60.0 ECTS

### SPECIALIZATION DIPLOMA IN RADIOLOGICAL PROTECTION IN RADIOACTIVE FACILITIES

🕒 Semi-Assistance | 📅 18 October 2022 | 30.0 ECTS | Course in progress

### SPECIALIZATION DIPLOMA IN RADIOLOGICAL PROTECTION IN NUCLEAR FACILITIES

🕒 Semi-Assistance | 📅 18 October 2022 | 30.0 ECTS | Course in progress

You can register for this activity at [www.cfp.upv.es](http://www.cfp.upv.es)

Registration →

Note: Consult the general and specific conditions of this activity in the file available at [www.cfp.upv.es](http://www.cfp.upv.es)