All lectures will be given in English.

Course title	Fundamentals of computational Fluid Dynamics in Astrophysics
Teacher in charge of the course	Giuseppe Lodato
List of the teachers of the course *[surname/name; affiliation; e-mail]*	Lodato Giuseppe, University of Milan, giuseppe.lodato@unimi.it
Training objectives	Obtaining a basic knowledge of the fundamental techniques to solve partial differential equations in fluid dynamics. Particular emphasis will be given to Smoothed Particles Hydrodynamics techniques, with hands on session on an actual high performance code.
Prerequisites *[please insert details and also **state whether the course has advanced contents** suitable for students with prior knowledge of the topics or is also suitable for students without prior knowledge]*	General knowledge in Astrophysics and Plasma Physics
Detailed course program	1. Recap of fundamental fluid equations 2. Finite difference techniques. Von Neumann stability criterion. 3. Advection and diffusion equations. Courant condition. 4. Smoothed Particles Hydodynamics : main equations and the role of artificial viscosity. 5. Hands on session on the Phantom SPH code.
Examination modalities	Oral examination on a simple hydrodynamical simulation performed at home by the student
Preliminary schedule *[please indicate the weeks when the lectures will be given]*	16-27 June 2025