

**Course offered for the PhD program
in Civil, Chemical and Environmental Engineering
a.y. 2025/2026**

(course is open for participation of students from other PhD cycles or programs)

1. Title

Hydrodynamic stability

2. Course Description

The course is a short introduction to hydrodynamic stability theory and covers the basic concepts regarding temporal stability of parallel shear flows. In particular we focus our attention on concepts like modal- and nonmodal stability analysis, as well as optimal perturbations and their respective relation to transition from laminar to turbulent flow.

3. Course Organization

The course consists of lectures and exercises in the classroom.

4. Teacher

Jan Pralits

5. Duration and credits

The course consists of 13 hours of lessons (8 hours of theory and 5 hours of programming exercises), and is valid 2 credits.

6. Activation mode and teaching period

The course is annual and will be held in February 2026. The minimum number of participants to activate the course is 5. Students interested in the course are requested to send an email to Prof. Jan Pralits (jan.pralits@unige.it).

7. Deadline for registration

The deadline for applications is January 15th, 2026.

8. Final exam

Programming exercises in class of different arguments treated during the course