

8 NUMERICAL MODELLING OF PROCESSES IN THE MARINE / COASTAL ENVIRONMENT AND IN WATERSHED-COAST SYSTEMS

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The course includes the following sections:

1. Process description equations in marine and coastal environment.
2. Numerical resolution methods and techniques.
3. Computational dummy structure.
4. Processing and analyzing field data and computational dummy input/output data.
5. Computational Dummy Applications I: Wind/Wave Circulation;
6. Computational dummy applications I: Ripple propagation
7. Computational dummy applications III: Estimating stereotransfer and morphodynamic changes.
8. IV Computational Dummy Applications: Project Interaction - Coastal Environment.
9. V modeling applications: Diffusion of oil pollution.
10. Holistic approach to simulation of Basin - Coast Systems (WACS) I: Methodology.
11. Holistic approach to simulation of Basin - Coast Systems (WACS) II: Tools.
12. Holistic approach to simulation of Basin - Coast Systems (WACS) III: Applications.
13. Personalized Work Semester: Presentation, Assignment, Elaboration with interactive teaching (solving queries and class corrections).

After completing the course, the participants are able to:

- They understand the process description equations in marine and coastal environments.
- They understand numerical resolution methods and techniques.
- They understand the structure of computational models.
- Understand the techniques of processing and analyzing field data and computational dummy input/output data.
- They understand the techniques of applying computer models.
- They understand the principles of a holistic approach to simulation of Basin-Coast Systems (WACS), with an emphasis on estuary systems and the coastal environment.
- They combine and apply the knowledge gained for the development and application of computational models to the above.

Teaching Mode: 3 Hours Suggestion-Workshop / Week