

PhD Course



**Applied and Computational Mathematics
in Engineering Application**

**March 25th to 29th, 2019
at University of Aveiro, Portugal**



The creation of these resources has been funded by the ERASMUS+ grant program of the European Union under grant no. 2016-1-DE01-KA203-002905. Neither the European Commission nor the project's national funding agency DAAD are responsible for the content or liable for any losses or damage resulting of the use of these resources.

Description



Content

- Mathematical modelling techniques for advanced civil engineering problems;
- Inverse problems;
- Data analysis techniques;
- Machine and deep learning techniques;
- Conceptual modelling approaches in engineering;
- Advanced topics in numerical mathematics;

Pre-requisites

Prerequisite for participation in addition to adequate English skills, is the submission of a meaningful motivation letter and an abstract with respect to current personal scientific activity which mediates the interest or the ability to edit the project themes.

Target group:

PhD students in the fields of civil engineering and mathematics.

Aims & Outcome



Aims

The course provides to PhD students a deeper insight in the field of applied and computational mathematics with engineering applications. In the course several advanced topics will be presented, which are partly supported by computer simulations and project work. After the course the students shall be able to apply advanced mathematical modelling methods and data analysis tools to evaluate signals and apply them in the design praxis. Additionally, the participating students will be encouraged to increase their personal competencies and transversal skills.

Learning Outcome

- Preprocess (denoising/ deblurring / etc.) and analyze experimental data;
- Evaluate the quality of numerical methods/algorithms for a given mathematical model and make a correct choice;
- Analyze the error and its propagation in mathematical models;
- Work in an international group, practice their management, presentation and language skills and more . . .

Coordination



Contact

University of Aveiro
Departamento de Matemática

Prof. Dr. rer. nat. Uwe Kähler
ukaehler@ua.pt

For further information, please visit:

Strategic Partnerships for Higher Education

www.uni-weimar.de/bauing/erasmus-sp

**Bauhaus-
Universität
Weimar**



Funded by the
Erasmus+ Programme
of the European Union