

Contribution ID: 8

Type: Talk (15min + 5min)

## Research software engineering - how do we teach the necessary skills to interdisciplinary teams?

Tuesday, March 5, 2024 3:30 PM (20 minutes)

Research projects in the field of energy systems research are typically conducted in interdisciplinary teams - scientists from energy and electrical engineering, computer science, economics and other disciplines often work together on simulation-based analysis [Ferenz2022]. In many projects, joint simulation models are created and integrated into existing simulation frameworks. Analysis of data from simulation studies is also often undertaken as a joint activity. Thus, the need for joint software and model development in energy system research is obvious. Nevertheless, the knowledge of software engineering strongly varies between the different backgrounds. In such an interdisciplinary research project in the field of energy research, we tested whether a training series on research software engineering would improve the quality of the work, especially the software, and the mode of collaboration.

The training series served to harmonize the level of knowledge on research software engineering across different disciplines and to make the individual competencies and knowledge of the partners usable within the overall group. This is done with the clear goal of improving the quality of the work and making tools relevant to the work known to all.

As part of the training series, several topics have been discussed beforehand with research group leaders in the domain to identify relevant competencies in the given setting of energy system research software.

The topics of joint software development, version management, and (automated) testing of the developed software have been identified as crucial aspects from the DevOps area, and thus have been addressed in first trainings. This was undertaken to ensure that all partners have a consistent level of knowledge and can guarantee a consistent quality standard for the developed software. As a basic module, some aspects from requirements engineering have been been part of the curriculum.

In addition, a closer look at open source strategies and licensing models was included since these are increasingly important in the context of Open Science. In this way, it was ensured that project members can meet the requirements of this approach during their work.

In the talk, some lessons learned from conducting the course will be presented and discussed. We would like to get feedback on the general idea, the course concept, the curriculum and discuss experiences of other attendees on delivering this kind of knowledge to interdisciplinary research teams.

The talk should include 15 minutes + 15 minutes discussion with the audience, if possible.

[Ferenz2022] Ferenz, S.; Ofenloch, A.; Penaherrera Vaca, F.; Wagner, H.; Werth, O.; Breitner, M.H.; Engel, B.; Lehnhoff, S.; Nieße, A. An Open Digital Platform to Support Interdisciplinary Energy Research and Practice —Conceptualization. Energies 2022, 15, 6417. https://doi.org/10.3390/en15176417

## Slot length

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## Session Classification: Teaching RSE Skills

Track Classification: RSE Research and Communities: Teaching RSE Skills