



10th International Doctoral Consortium on Informatics and Informatics Engineering Education Research
joint with *Nordplus* workshop
Culturally Diverse Approaches to Learning Mathematics and Computational Thinking

Vilnius University together with Lithuanian Computer Society organize a doctoral consortium on December 2-6, 2019 in Druskininkai, Lithuania. Chair: Prof, dr. Valentina Dagienė.

The aims:

- To offer a friendly forum for doctoral students to discuss their research topics, research questions and design in the field of computing education / educational technology – informatics engineering and education.
- To receive constructive feedback from their peers and senior researchers, to help with choosing suitable methodology and strategies for research.
- To support networking with other researchers.
- To discuss any relevant questions related to research and academic life.

Participants

The consortium is designed primarily for students who are currently enrolled in any stage of doctoral studies with a focus on informatics engineering / computing education research or with a focus on modern education and information technologies research. Senior researchers in the field will provide feedback and suggestions for improvement of the research proposals.

Requirements

Each participant should submit a document, which includes the following information:

- a brief background of the applicant including information about studies, research topic, publications if any, and possible teaching experience.
- a summary of his/her research, including motivation, any relevant background and main literature (3-5 items).
- to contextualize the research, research questions, methodologies used or planned, and possible results obtained.
- questions related to the research that the applicant would like to discuss and get feedback on in the doctoral consortium.

The summary will be made available for other participants of the doctoral consortium to allow providing feedback and preparing questions on the research. The research summaries are in free format and should be 2-4 pages long. The following elements must be addressed:

1. A clear formulation of the research question,
2. An identification of the significant problems in the field of research,
3. An outline of the current knowledge of the problem domain and the existing solutions,
4. A presentation of any preliminary ideas, the proposed approach and achieved results,
5. A sketch of the applied research methodology,
6. A description of the Ph.D. project's contribution to the problem solution,
7. A discussion of how the suggested solution is different, new, or better as compared to existing approaches to the problem.

Participants should prepare: 1) An introduction of themselves and their PhD project. 2) A poster and a 15–20 min. presentation of their PhD project to be used for introducing discussion.

Participating students of the Doctoral Consortium will have numerous opportunities for intercultural exchange, both within the international student group and meeting local students and teacher. This will enable them to gain rich intercultural experience.

Lectures and hands-on activities will be held by an international professors from 6 countries (Austria, Finland, Netherlands, Sweden, Ukraine as well as Lithuania).

All participated students will be granted 2 ETCS credits from Vilnius University, with certificates of participation.

AGENDA

Monday, December 2

- 15:00 (approx.) *Bus from Vilnius airport*
18.30 *Dinner*
20:00 *Welcome and introductory discussion on work done by each student.*

Tuesday, December 3

- 08.00 – 09.00 *Breakfast*
09.00 – 10.30 Arnold Pears (KTH – Royal Institute of Technology, Stockholm, Sweden). Engineering Education Research: An Overview of Methods.
10.30 – 11.00 *Coffee break*
11.00 – 12.00 Erik Barendsen (Radboud University, The Netherlands). Using PCK instruments, concept maps and learner reports.
12.00 – 13.00 *Lunch*
13.00 – 14.30 Doctoral student's posters presentation: BIG research idea (5 min. for each). Questions and discussions
14.30 – 15.30 Individual work. Improve (re-write) your poster which summarizes your research: BIG research question, goal, subtasks, data collection and analysis methods, theoretical framework, scope, and use of results.
15.30 – 16.00 *Coffee break*
16.00 – 18.00 Reflection on students' posters: all participants will read posters and write down their questions and comments.
18.00 – 19.00 *Dinner*
19.00 – 22.00 Late discussions in groups on work done during a day.

Wednesday, December 4

- 08.00 – 09.00 *Breakfast*
09.00 – 10.30 Gerald Futschek (Vienna University of Technology, Austria). Suggestions and criteria for writing doctoral thesis.
10.30 – 11.00 *Coffee break*
11.00 – 12.00 Mikko-Ville Apiola (University of Turku). Computational Thinking in the collaborative education platform ViLLE: a Cultural viewpoint.
12.00 – 13.00 *Lunch*
13.00 – 15.30 Erik Barendsen (Radboud University, The Netherlands). Workshop on research methods (topics to be chosen together with the participants). *Students will be divided in several working groups according to their topic.*
Group 1 (Mikko-Ville Apiola and Liudmyla Kryvoruchka);
Group 2 (Erik Barendsen and Gabrielė Stupurienė);
Group 2 (Arnold Pears Valentina Dagienė);

Group 3 (Gerald Futschek and Vladimiras Dolgopolas).

- 15.30 – 16.00 *Coffee break*
- 16.00 – 18.00 *Continuation of work in groups.*
- 18.00 – 19.00 *Dinner*
- 19.00 – 22.00 *Groups presentations of their work. Reflection on each group work.*

Thursday, December 5

- 08.00 – 09.00 *Breakfast*
- 09.00 – 10.30 *Liudmyla Kryvoruchka (National University "Kyiv-Mohyla Academy", Kiev, Ukraine). Pprblem based Learning and P4C methods for designing research.*
- 10.30 – 11.00 *Coffee break*
- 11.00 – 12.30 *Arnold Pears (KTH – Royal Institute of Technology, Sweden) and Valentina Dagiene (Vilnius University). Planning research on cultural diverse approaches teaching mathematics and computational thinking.*
- 12.00 – 13.00 *Lunch*
- 13.00 – 15.30 *Each student will work on her / his research by improving it presentation: research goal and tasks, research plan and methodology, selected research methods and theories, suggesting model or prototype, defining testing. Each student should make a poster and present.*
- 15.30 – 16.00 *Coffee break*
- 16.00 – 18.00 *Final conclusion and suggestions. General discussion, including a brainstorming session about current and future research topics in the area.*
- 18.00 – 19.00 *Dinner*

Friday, December 6

- 08.00 – 09.00 *Breakfast*
- 09.30 *Departure to Vilnius airport*