

6. Liudmyla Gryzun

Digital and didactic tools for the development of interdisciplinary curriculum for pre-service Mathematics teachers' training

As the content of education is realized via curriculum subjects, it is a paramount problem to build the coordinated system of academic subjects structured with preserved links between elements of knowledge. On the other hand, any academic subject, especially in pre-service Maths teachers' training, is an embodiment of some scientific domain adapted to teaching and learning. Hence, it must reflect correctly and adequately the structure of knowledge domain, preserving main links between notions, concepts, facts, theories that really exist both inside the scientific branch and between sciences in a whole. It will promote and contribute to creation holistic and flexible system of pre-service teachers' knowledge and their readiness to form similar system in their pupils' minds in future. However, very often the modular structuring of curriculum subjects does not preserve or does not convey necessary essential links between scientific knowledge what can cause negative consequences for trainees' (forming of separate and uncoordinated system of trainees' knowledge, acquisition of purely specific skills instead of generalized ones, breaking of general wholeness and logic of a subject as well as destroying of links between related subjects etc.)

So, in my workshop I am going:

- 1) to discuss and represent knowledge integration as a result of natural integration tendencies in science and their influence on the structure and content of academic disciplines; to highlight necessity of knowledge integration reflection in the system of curriculum subjects in Math teachers' training.
- 2) to represent mechanisms of knowledge integration and to demonstrate didactic and digital tools of their realization in the process of interdisciplinary curriculum development on purpose of academic time economy, provision students' holistic overview about the world, and forming their integral and flexible system of knowledge and skills. These tools provide and spread links between elements of knowledge on different stages of teaching and learning, and include:
 - specific didactic procedures based on knowledge domain analysis and revealing didactic characteristics of academic disciplines and
 - technical steps which lead to coordinated digital curriculum structure with realized integration mechanisms between knowledge.All of these procedures and steps are expected to be fulfilled by the participants of the workshop in the process of collaborative work.
- 3) to discuss teacher's tasks and activity under the terms of interdisciplinary approach to learning;
- 4) to demonstrate the ways of evaluation of the results of knowledge integration on the level of teaching and learning;
- 5) to discuss didactic problems of Maths teachers' training which can be solved with the help of such an approach to the curriculum development.

Technical facilities needed for the workshop: video projector, computers for the workshop participants with GeoGebra, MS Access 2007, TextAnalyst 2.0 software.