


ICT in teaching mathematics as a content for didactic education of future teachers as well as for additional education of teachers on Comenius University in Bratislava



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Students of pedagogy of mathematics can choose the following courses:

□ Undergraduate students:

■ Information and communication technologies in teaching mathematics

- optional course, 2 semesters, 2 hours per week, possibility to complete the course via e-learning form

□ Graduate and postgraduate students:

■ Didactic software in teaching mathematics

- compulsory optional course, 2 semesters, 2 hours per week, possibility to complete the course via e-learning form

Information and communication technologies in teaching mathematics

□ Course goals:

- To prepare future teachers of mathematics for using information and communication technologies in teaching mathematics on elementary and secondary schools.

□ A brief outline of the course:

- Introduction - Significance of ICT in teaching mathematics
- Internet as a resource of pedagogic and mathematical information for the teacher (useful websites)
- Mathematical Java applets in the Internet - their search and use

- Manipula Math with Java <http://www.ies.co.jp/math/java/>

- Maths online <http://www.univie.ac.at/future.media/moe/>

- Java Applets on Mathematics <http://www.walter-fendt.de/m14e/>

□ A brief outline of the course:

- The use of plotters - software for drawing graphs of functions as a powerful tool for solving equations and inequalities and optimization tasks
 - Graphmatica <http://www8.pair.com/ksoft/>
 - Graph <http://www.padowan.dk/>
 - Graphic Calculus <http://www.padowan.dk/>
- Dynamic geometry software and their use in planimetrics and stereometrics
 - Cabri geometry <http://www.cabri.com/>
 - GeoNext <http://geonext.uni-bayreuth.de/index.php?id=2453>
 - C.A.R. <http://stuleja.org/CaR/index.html>
 - GeoGebra <http://www.geogebra.org/>

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- Derive and it's use

 - The use of MS Excel in solving problems from statistics and probability

 - Programmable graphic calculators (CASIO CP300)
 - <http://www.ddm.fmph.uniba.sk/ematik/index.html>
 - <http://edu.casio.com/>
 - <https://edu.casio.com/forum/index.php?bn=3>
 - <https://edu.casio.com/forum/index.php?bn=2>

Didactic software in teaching mathematics

- Contents: students gain an overview about the didactics of using digital technologies in teaching mathematics

- New and innovative teaching methods and forms with ICT:
 - Constructivist approach and digital technologies
 - workshop method, peer instruction method, project method
 - didactic aspects of using an interactive whiteboard, voting devices, tablets, ...

A few examples of final works of students within the above mentioned courses:

- Cabri geometry
- GeoGebra
- (GeoGebra 2)
- Derive
- Graphic calculator - CASIO CP
- <http://elearn.ematik.fmph.uniba.sk/>

Additional education (training) of teachers of mathematics:

□ e-learning form

- <http://elearn.ematik.fmph.uniba.sk/>

□ ICT training in teaching mathematics

- <http://www.ddm.fmph.uniba.sk/files/iktZSaSS/grafy/graf2.htm>
- <http://www.ddm.fmph.uniba.sk/files/iktZSaSS/aplety/jap4.htm#gonfcie>
- http://www.ddm.fmph.uniba.sk/files/DSVM/cd_cabri/prvekroky.htm

A few examples of final works of teachers within their additional education

□ Cabri triangle

□ GeoGebra

- http://kniznica.sospreskoly.org/home/course/content.php?_cid=463
- http://kniznica.sospreskoly.org/home/course/content.php?_cid=291
- http://kniznica.sospreskoly.org/home/course/content.php?_cid=519

□ <http://elearn.ematik.fmph.uniba.sk/>

Thank you for your attention