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
  - Graph [http://www.padowan.dk/](http://www.padowan.dk/)
  - Graphic Calculus [http://www.padowan.dk/](http://www.padowan.dk/)

- Dynamic geometry software and their use in planimetrics and stereometrics
  - Cabri geometry [http://www.cabri.com/](http://www.cabri.com/)
Derive and it’s use

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

Programmable graphic calculators (CASIO CP300)

- [http://edu.casio.com/](http://edu.casio.com/)
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/](http://elearn.ematik.fmph.uniba.sk/)

- ICT training in teaching mathematics
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=463)
  - [http://kniznica.sospreskoly.org/home/course/content.php?cid=291](http://kniznica.sospreskoly.org/home/course/content.php?cid=291)
  - [http://kniznica.sospreskoly.org/home/course/content.php?cid=519](http://kniznica.sospreskoly.org/home/course/content.php?cid=519)

- [http://elearn.ematik.fmph.uniba.sk/](http://elearn.ematik.fmph.uniba.sk/)
Thank you for your attention