

**Courses:  
Groundwater Flow and  
Contaminant Transport Modeling (for HgE  
and EnvE)**

## **Course information**

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# All information will be found on the net

GÁMA-GEO Hidrogeológia - Numerikus modellezés - Geotechnika - Környezetvédelem

"Azért a víz az úr!"

Magunkról

Szakértőink

Tevékenységi köreink

Referenciák

Szakmai jogosultságok



## Felhagyott külfejtés tava, Rudabánya

Környezetvédelem - Ipari tevékenységek hatásvizsgálata

Kezdőoldal

Aktuális

Oktatás

Courses in English

Szakterületeink

Képgaléria

Hasznos linkek

Partnereink

Céginformációk

Elérhetőségeink

Üzenőfal

Kapcsolat:

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Kezdőoldal

Ha a talajvízzel, ivóvízzel, hévízzel kapcsolatos gondjai vannak, jó helyen jár! Oldassa meg problémáját Velünk!

A GÁMA-GEO Kft. a hidrogeológia (vízföldtan), a geotermia, a numerikus modellezés (szimuláció) és a talajmechanika területein kínál magas szintű mérnöki szolgáltatásokat!

Kérem, barangoljon lapjainkon!

Kovács Balázs és Szanyi János  
ügyvezetők

<http://www.gama-geo.hu>



# Time schedule for the courses

Week	Date	Topic
1	10/2/2020	Introduction to GW Flow Modeling – Theory of modeling – Basic Processing MODFLOW
2	17/2/2020	Modeling wells, drains, rivers, recharge, evapotranspiration, etc - using steady state models
3	24/2/2020	Special boundary conditions (GHB, no flow, etc.) - transient modeling
4	2/3/2020	Well field simulation
5	9/3/2020	Simulation of pumping and injection
6	16/3/2020	Determination of wellhead protection area
7	23/3/2020	Simulation of the hydrogeological regime of a unit basin
8	30/3/2020	Summary of GW flow modeling
9	6/4/2020	Basics of contaminant transport modeling
10	20/4/2020	Simulation of migration of different pollutants
11	27/4/2020	Simulation of a remedial system
12	4/5/2020	Summary of contaminant transport modeling
13.	11/5/2020	Fails due to my trip (9/5/2020 – 19/5/2020) on abroad Test (final individual work)
13+	22/5/2020	Test (final individual work)

# Attendance requirement

***Attendance list will UNREGULARLY be used!***

***Officially no attendance prescription, but***

*please take into account that there is no time for repetition or summary of the previous course materials during the lectures, meanwhile the topics of each lecture requires the understanding of the previous ones!*

***In case of missing any occasion the completion of the course is not guaranteed!***

***Consultation is only for students REGULARLY attending the course!***



# Possible ways to complete the course

- 1. **Use own computer and work alone** (The advantage of this method is that you may have all materials on your own computer and you may continue or finish the tasks at home. The disadvantage is that you must be quick and very clear headed to understand the topics, to make your own lecture notes and also to work parallel the computer! Choose this option only in case You like challenges!!!)
- 2. **Use own computer and work in groups of 2-3 people** (The advantage of this is that everyone has more time to understand the topics in details, meanwhile a group member prepares the lecture notes, another member works on the computer, and a possibly a third member is helping to the others. A disadvantage is the lack of digital materials on the computer of each of you but you can share it after the course. This is a recommended method to complete the course.)
- 3. **Only follow the topics without parallel work on own computer** (This makes understanding the most easily but this needs more efforts at home, to repeat the procedures and understand even the practical steps besides the theoretical ones. Choose this method if you prepared to work at home and to understand the course material immediately after the course (same or next day until You remember in details))

There is no BAT (Best available technology) please use the most convenient one for you  
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# Software installation tips

- You may choose: to work with or without own computer
- There are no official computers distributed by us to the students!
- In case you use your own computer/laptop:
  - no special configuration needed
  - Windows op. system
  - code Processing Modflow for Windows ver. 8.0.47 for Win8 or Win10.
- The software can be downloaded from the site:  
**www.simcore.com**. Please to **download the version v8.0** and not the freeware version 5.3.3!!! (Both can be installed but the commercial version will be restricted in model size).
- Please to install the code into a directory not far from the root (for. ex. d:\kb\pm533; c:\simcore\pm5 or similar, **don't use Desktop or the documents directory created by the Windows!**



# Home works

- 1. Hydraulic modeling of a heat pump pumping and injection
- 2. Steady state model of a well-field
- 3. Transient model of a pumping test
- 4. Investigation of a modified unit basin at unconventional boundary conditions
- 5. Modeling remediation of a contaminated site

All home works should be **completed before the last Monday of the Semester**. They should be delivered both digitally (data sets and short resume) and in printed version (short resume and some figures of interest to demonstrate the work completed)

I will upload the homeworks later (parallel to the course)!



**Whether modeling or real life, never give up easily!”**  
(Wen-Hsing Chiang, creator of PMWIN)

Thanks for  
Your attention!

