



## SUBJECT DATASHEET

<b>Semester:</b>	2009/10/2
<b>Subject:</b>	Environmental Modelling
<b>Code:</b>	VEMLKVM112A
<b>Responsible department:</b>	Department of Environmental Engineering
<b>Responsible department code:</b>	MKKV
<b>Responsible lecturer:</b>	Imre Magyar

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### Educational objectives:

Understanding the basics of air pollution, hydraulic and transport and noise models. Demonstration of widely used modelling softwares.

### Detailed content of the subject:

1. Questions of environmental modelling. 2. Scientific, mathematical and technological models. 3. Environmental modelling systems. 4. Air pollution models, general and special models and its applications. 5. Modelling of surface waters, hydraulics and transport. 6. Modelling of transport in aquifer, vadose and saturated zones. 7. Modelling of transport in aquifer. Generally used softwares. 8. Multi-phase system hydraulic and transport modelling. 9. Environmental and ecological risk models and its softwares. 10. Integration of modelling systems. 11. Integration of modelling systems with GIS and databases. 12. Visualisation and application of 3D methods in environmental modelling. 13. Project examples in environmental modelling.

### Requirements:

Successful paper exam at the end of the semester.

### Required and suggested references:

Szűcs Ervin: Hasonlóság és modell. Műszaki K., Bp., 1972. Bear, J., Verrujit, A.: Modelling Groundwater Flow and Pollution. D. Reidel Publ. Co., 1987. Kovács B.: A hidrodinamikai és transzportmodellezés elmélete (Theory of GW flow and contaminant transport modeling) in: Filep Gy. - Kovács B. - Madarász T. - Lakatos J.- Szabó I.: Szennyezett területek kármentesítése (Remediation of polluted sites), book, University of Miskolc Publishers, pp. 309-410., 2002 Kármentesítési kézikönyv-Szennyezésterjedési modellek alkalmazásai