

Course Name	Code\No.	Number of Credits			
		Theo.	Lab.	Train.	Credit
Mitigation Of Flood Risks	HWR 425	3	-	-	3
Pre-Requests	HWR 221 - HWR 222 - HWR 314 - HWR323				

Course Objectives:

The course aims to introduce the student to the concepts and tools that enable him to know the basics of preventing flood risks. Through: Knowing the types of floods, the factors that affect the floods, the risks and effects of floods, climate change and its relationship to floods, what is the management of flood risk, the relationship of flood simulation systems and their modeling with the concept of uncertainty, analysis and evaluation of risk of floods, structural and non-structural measures to prevent the risks of floods, strategies of Flood protection.

Course Contents:

1. floods and their effects
2. The concept of uncertainty in the modeling of floods and its relationship to risk
3. Flood risk management cycle
4. analysis and assessment of the risk of floods
5. Structural measures
6. Non-structural measures
7. Flood prevention, protection and mitigation strategies

Course outcomes:

It is expected that the student, upon completing this course, will acquire the following knowledge and experience:

Knowing the basics of how to ward off the risk of floods, the cycle of flood risk management, assessing the risk of floods, structural and non-structural measures to mitigate floods, strategies for prevention, protection and mitigation of floods, developing the student's ability to scientific analysis and rational understanding of scientific matters and evidence.

Evaluation method

The evaluation is done through midterm and final exams, in addition to some duties and discussion by the course teacher with students.

Course book:

- McCuen, R. (2005). Hydrologic Analysis and Design, Pearson Prentice Hall.

References:

- Abhas, K., Bloch, R., & Lamond, J. (2012). Cities and Flooding: A Guide to Integrated Urban Flood Risk Management for the 21st Century. Washington, D.C., USA: The World Bank.
- Medina, D. (2006). Benefit-Cost Analysis of Flood Protection Measures. Technical Memorandum, CH2M Hill.
- Merz, B., Kreibich, H., Schwarze, R., & Thieken, A. (2010). Assessment of economic flood damage. Natural Hazards and Earth Systems Science, 1697–1724.

- Prinos, P. (2008). Review of Flood Hazard Mapping. European Community Sixth Framework Programme for European Research and Technological Development. FLOODsite.
- Rogelis, M. (2012). Advances in Probabilistic Flood Hazard Assessment. CAPRA. Washington D.C.: The world bank
- Sieck, L., Burges, S. J., & Steiner, M. (2007). Challenges in obtaining reliable measurements of point rainfall. *Water Resources Research*, 43, W01420.
- Tapsell, S. M., Penning-Rowsell, E. C., Tunstall, S. M., & Wilson, T. L. (2002). Vulnerability to flooding: health and social dimensions. *Phil. Trans. R. Soc. Lond. A*, 360, 1511–1525.
- United Nations Office for Disaster Risk Reduction (UNISDR). (2004). *Living with risk: a global review of disaster reduction initiatives*. 429 p.