

Table 5.2 Specification of Course

Study Program: Material and Energy Flows Management			
Type and level of study: Master Academic Degree			
Name of Course: RISK ASSESSMENT OF INDUSTRIAL SYSTEMS			
Lecturer: Zoltan Zavargo			
Status of Course: elective			
Credits (ECTS): 5			
Preconditions: none			
Aims of the Course Risk assessment is an essential source for safety studies for food, chemical, petrochemical, and other technological systems. It enables to understand all aspects of minimizing the dangers of toxic incidents and accidents, and detection, prevention, and management of risks associated with processing, handling, and production of hazardous chemicals. It is necessary for engineers and managers responsible for safety in different chemical plants.			
Outcomes/Competences of the Course Students are trained to identify hazards using different hazard assessment techniques, to calculate potential consequences of identified hazards, quantify the likelihood of these events, and combine equipment failure rate data and human reliability analysis with risk assessment. Students are prepared to perform screening technique, chemical dispersion, explosion, and fire analyses, to determine health effects from chemical releases and to conduct internal and external safety audits, in order to control the safety of different technological processes.			
Description of the Course Content Risk analysis methods: Preliminary Hazards Analysis, WHAT-IF Analysis, Fault Tree and Event Tree Analysis, Chemical Plume Dispersion Analysis, Explosion and Fire Analysis and Calculation of Human Reliability. The Calculation of potential consequences of hazards based on practical examples. Different case studies.			
Required Readings 1. Integrated Life-Cycle and Risk Assessment for Industrial Processes, G. Sonnemann, F. Castells, M. Schuhmacher; CRC Press, 2003.			
Lessons			Other hours
Theory: 45	Practice:30	Other:	Research work
Teaching Methods Lectures and students group work			
Grade (maximal number of points: 100)			
Pre-exam duties	Points	Final exam	Points
Activity during the lectures	10	Oral exam	30
Test I and Test II	40		
Seminar paper	20		