UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2012/13/1
Course:	Low- Waste Technologies
Code:	VEMKKVB112H
Responsible department:	Department of Environmental Engineering
Department code:	MKKV
Responsible instructor:	Róbert Kurdi

Course objectives:

Practisating environmental engineers have to be knowledge from the role of waste (destructed the nature) origin from the industrial processes but their production could have been decreased by different methods. The object of this subject to summarise the different practical processes developed for decreasing the amount of waste material (and energy) in practical technology steps.

Course content:

1. Industrial production (and common consumption) as a fact possibility of industrial waste production process. 2. Basic principle, discription, development and practical ability of low waste technologies and cleaner production. 3. Alternatives for waste minimisation and pollution prevention. Methods for pollution prevention. 4. Development and applying of the low waste technologies program in the industrial processes. 5. Control and revise of industrial technological processes to prevent the environment from waste production. 6. Production database. Data storage ont he local site. Raw materials, production process control, maintanence, etc. effect to the waste materials occure int he technological processes. 7. Calculation of material and energy streams. Correlation to the values of technological process parameters. Waste materials as secondary raw materials. 8. New raw and subsidiary materials as known as waste materials before. 9. Case studies from the technological process renovation alternatives, economical and technical efforts. 10. Applying new technological processes and equipments in the industrial production. 11. Inceasing of effeciency as waste minimization. Completion and supplement of the processes. 12. Case study: Complett renovation of technological process=Environmental friend technologies. 13. Case studies for applying new technological processes, equipments and technologies. 14. Case studies for applying new technological processes, equipments and technologies. 15. Consultation. Written examination

Requirements, evaluation and grading:

- Active practical works on seminars, individual case study and introduction - make a successful (>2,5 point in 0 – 5 scale) written examination from the subject.

Required and recommended readings:

Chopey V.: Environmental Engineering in the Process Plant. McGraw Hill Inc. 1993 ISBN Harry M. Freeman: Hazardous Waste Minimalization , McGraw Hill Inc. 1990, ISBN 007-022043-3 C McGrath, M Anderson: Waste minimisation on a construction site, 2000, ISBN: 186081400X D. Huisingh: Cleaner Production: Theories, Concepts and Practice; Erasmus University Rotterdam, 1993 Nelson L. Nemerow: Zero Pollution for Industry: Waste Minimization Through Industrial Complexes, John Wiley & Sons 1995, ISBN: 0-471-12164-9