

5. 質問票

**Project for Human Resource Development for Environmental Engineers at
College of Dunaujvaros
Questionnaire for Project Counter Parts**

Date: 24 November 2004

Prepared by the Final Evaluation Mission, JICA

1. Why do students choose the present environmental engineering sub course?
2. Competency assessment for the C/Ps
3. Mainly who were engaged in development of the curriculum for the main course
4. Subjects supported by the project in a course of the above development
5. Any problems that have been caused in a course of the above development; necessary educational equipment, shortage of the lecturers and others, if any
6. Contribution by the supplied educational equipment
 - a. List of the subjects that were improved with the supplied equipment
 - b. Necessity for such improvement
7. Contribution by the supplied teaching and reference materials
 - a. List of the subjects that were improved with the supplied teaching and reference materials
8. Contribution by securing practice facilities in factories in Dunaferr
 - a. List of the subjects that need practice facilities in real factories
 - b. Past records on use of the practice facilities in Dunaferr by practices for the sub course students
9. Can delay in accreditation of the main course badly influence operation of the sub course in any aspects?
10. In case that the sub course has to be continued furthermore as a result of the delay of accreditation for the main course, is there clear benefits in improvement of the environment engineering education?
11. Was the supplied equipment appropriate, in terms of specification, quantity, and timing of delivery?

12. Utilization of the supplied equipment and materials
 - a. Persons in charge of operation and management for the main equipment
 - b. Extent to use the equipment
 - c. Availability and procurement of the consumables and spare parts for the main equipment
13. Did the counterparts training in Japan properly executed in terms of number of trainees, area and course of training, and timing of its implementation?
14. Has the supplied scientific instrument occasionally been used for other degree programs?
15. Network infrastructure conjoining industry, government and college
 - a. Future action plans after the project
16. Can CPs operate and manage the main equipment supplied?
 - a. Extent of use in practice for the relevant subjects and others
17. Will scientific knowledge of lecture and practice that were transferred to the CPs be sustained in the college?

Attachment: Competency Assessment, excel file

Competency Assessment

Name of Project Counterpart: _____

Wastewater Pollution Prevention Technology

1. Lecture of Water and Wastewater Treatment Technology

	Target Level	Before the Project	Present Level
(1) Importance by Improvement of Production Process to decrease Wastewater			
(2) Analytical Item			
(3) Wastewater Source from Factory			
(4) Purpose and Meaning of Conditioning Tank			
(5) Coagulation Sedimentation Technology			
(6) Floatation Technology			
(7) Aeration Technology			
(8) Adsorption Technology			
(9) Ion Exchange Technology			
(10) Biochemical Treatment			
(11) Dewater Technology			

2. Training in Laboratory

Please assess skills for preparation (both for specimen and equipment), operation, data sampling, data analysis, and minor trouble shooting. In case skill level is different for these techniques, please add new rows as needed like example in GC-MS.

	Target Level	Before the Project	Present Level
(1) Pure water Producer			
(2) pH meter			
(3) Jar Tester (Coagulation Test)			
(4) Floatation Tester			
(5) Total Organic Carbon Analyzer			
(6) Easy Analytical Indicator			
(7) Gas Sampling Unit			
(8) Octave Band Real-time Analyzer			
(9) GC-MS			
Preparation for specimens			
Preparation for equipment			
Operation			
Data sampling			
Data analysis			
Minor trouble shooting			
(10) Atomic Absorption Analyzer			
Preparation for specimens			
Preparation for equipment			
Operation			
Data sampling			
Data analysis			
Minor trouble shooting			
(11) SPM Analyzer			
(12) Extraction- Condensate Eq.			
(13) Coagulation sedimentation Eq.			

3. Field Practices

	Target Level	Before the Project	Present Level
(1) Planning on field surveys			
(2) Preparation for a field survey			
(3) Water or gas sampling at fields			
(4) Specimen handling			

Classification of Achievement Level Evaluation

Level 1: Implemented by Japanese expert, CP's understanding is well enough

Level 2: CP can implement under Japanese expert's guidance

Level 3: CP can implement without Japanese expert's guidance

Level 4: CP can give guidance to other people under Japanese expert's guidance

Level 5: CP can give guidance to other people without Japanese expert's guidance

**Project for Human Resource Development for Environmental Engineers at College
of Dunaujvaros**

Questionnaire for the Project Manager

Date: 24 November 2004

Prepared by the Final Evaluation Mission, JICA

Please provide the evaluation team with the following information or data:

- (a) Outline of the qualification system for environment engineers (1996?) in Hungary
- (b) Numbers of the course enrollments; 1999 to 2003
- (c) Numbers of the course graduates; 1999 to 2003
- (d) Trends of pass rate in entrance examination for College of Dunaujvaros
- (e) Records of employment of the graduates from the sub course for environmental engineering
- (f) Curriculum (in English, please) for the present sub course (subject title, lecture and practice hours, credit, department in charge, and lecturer)
- (g) Planned curriculum (in English, please) for the main course for environmental engineering
- (h) Equipment logbook, or substitutable records, for the main equipment supplied by the project
- (i) Plans of the building for the project relation facilities
- (j) Installation plans of the main equipment
- (k) Annual budgets for the college
- (l) Statements on the revenue and disbursement
- (m) Proceeding papers for workshops; for those held inside and outside the college
- (n) The latest organization chart of the college

The project manager (PM, present and previous college head)

1. Prioritized sectors in the environmental protection policy
2. Relation between the qualification system for environmental engineers and the academic degree (bachelor and master)

3. Accreditation records by the HAC for environment engineering related degree programs in colleges and universities in Hungary
4. Numbers of the graduates from the similar degree programs in colleges and universities in the country
5. The implementation organization was properly selected? College of Dunaujvaros was an appropriate organization for achieving the overall goal of the project?
6. Why the environmental engineering main course needed to establish?
7. Academic degree that can be obtained by the present environmental engineering sub course
8. Why do students choose the present environmental engineering sub course?
9. Why accreditation for the main course is delayed?
 - Difference in curriculum, education facilities and lectures needed between the main course and the sub course
 - Requirements for the accreditation by HAC for formulating and operating the main course
10. Necessity for revising the environmental education curriculum, accompanied with joining to the EU member states
11. The environmental education system in Hungary and the EU standards
12. Curriculum (subject title, lecture and practice hours, credit, department in charge, and lecturer)
 - Curriculum plan for the main course
 - Present curriculum for the sub course
13. Number of the CPs who could have been continuously benefited from technical guidance by the experts
14. List of the subjects that were targeted for the technology transfer
15. Number of the lecturers that is necessary to operate the main course; by fulltime and part time lecturer
16. What contribution could have been made for improvement of the education if the main course was made available?
 - Improved points in the curriculum
 - Improvement points in the syllabus
 - Necessity of the above improvement

17. Progress in the ISO 14000 acquisition by College of Dunaujvaros
18. Can delay in accreditation of the main course badly influence operation of the sub course in any aspects?
19. In case that the sub course has to be continued furthermore as a result of the delay of accreditation for the main course, is there clear benefits in improvement of the environment engineering education?
20. Negative influence that was left by the delayed accreditation of the main course
 - Influence on number of the students
 - Influence on number of lecturers
 - Others
21. Were the fields of expertise of the long-term experts appropriate for the subjects in the environmental engineering education at College of Dunaujvaros? Please give all the subjects that were benefited by assistance by them.
22. Timing to send them was appropriate?
23. If there were any lacks in the above fields supported, the short-term experts could supplement them?
24. Were assignments of the CPs appropriate, in terms of number of person, extent of involvement in the present and planned course, extent of involvement in the project activities and their competency?
 - Total times of lectures/practices per week for each of the Hungarian counterparts
 - List of the subjects that the CPs are in charge
25. Was there any shortage in the project operation costs?
 - Operation costs for the sub course
 - Operation and maintenance cost for the main equipment
26. Will graduates from the environmental engineering in the College of Dunaujvaros be more able to get jobs in the environmental engineering or other related fields?
 - Number of relevant job offers for the College
 - Trend of employment of the graduates from the sub course
27. Others cities or towns received any effects form the project?
 - Activity an environment NGO in a city nearby
 - Other general information on the project impacts in other cities or towns

28. Was ISO 9001 acquired?

Date of the acquisition and advantages by the acquisition

29. Are there any other effects by the project?

30. Status of College of Dunaujvaros in the accreditation system for degree programs of the environmental engineering; in the recent list of accreditation by HAC, there are no categories of college faculties in the college.

31. Prospect of the accreditation for programs in the college in the next renewal time (February 2007).

32. Possibility to secure the lecturers required

33. Responsible faculties for the sub and main course for environment engineering

34. Ability to manage the main course

Experience and ability of the person in charge to manage degree programs of a similar level

35. Prospects on the financial capability

The college budget

Budget allocation for the faculty in charge of the sub course

36. The college is bearable for the project operation costs?

Estimated operation costs for the main course

Equipment maintenance costs

Is a fund prepared for the future renovation or renewal of the main equipment?

37. Outer financial source

Actions for contracted or sponsored researches and future plan, if any

Extent of dependence on and securing of the outer financial sources; for an example those form Dunaferr

Attachment

Accreditation for degree programs for the environmental engineering and/or related fields in environmental science; Are following college faculties or faculties being accredited?

A: Association, B: Bachelor, M: Master, D: PhD

Budapest University of Economic Sciences and Public Administration

Department of Landscape and Urban Design

Areas of Study Sampling*: Ecology, Environmental Studies, Landscape Architecture (B), Urban and Regional Planning

Faculty of Horticultural Science

Areas of Study Sampling*: Agriculture, Biology, Botany (B), Ecology, Horticulture (M, D), Plant Sciences (B), Soil Sciences (B), Sustainable Development (B), Water Resources (B)

Budapest University of Technology and Economics

Environmental Engineering Program

Faculty of Chemical Engineering

Areas of Study Sampling*: Air Resources /Air Quality, Chemistry, Environmental /Ecological Design, Environmental Economics, Environmental Engineering (M), Environmental Health /Industrial Hygiene, Environmental Law, Environmental Technology, Mitigation /Remediation, Risk Analysis, Soil Sciences, Waste Management, Water Resources

Central European University

Department of Environmental Sciences and Policy

Areas of Study Sampling*: Agriculture, Atmospheric Sciences, Biology, Chemistry, Ecology, Energy Studies, Environmental /Ecological Design, Environmental Law, Environmental Policy (M,D), Environmental Science (M,D), Physics, Risk Analysis, Sustainable Development, Water Resources

Szechenyi Istvan University

Department of Environmental Engineering

Areas of Study Sampling*: Air Resources /Air Quality, Biology, Chemistry, Conservation Biology, Ecology, Energy Studies, Environmental Economics, Environmental Enforcement, Environmental Engineering (B), Environmental Journalism /Communications, Environmental Law, Environmental Management, Environmental Policy, Environmental Studies, Environmental Technology, Geographic Information Systems (GIS), Geology / Geosciences, Peace Studies, Conflict Resolution, Risk Analysis, Soil Sciences, Waste Management, Water Resources

University of Debrecen

Agricultural Sciences Center

Areas of Study Sampling*: Agriculture (B,D), Biology, Chemistry, Crop Science (D), Ecology, Environmental / Ecological Design, Environmental Law, Environmental Management (B), Environmental Policy, Environmental Studies, Environmental Technology, Global /International Studies, Horticulture (B,D), Landscape Architecture, Meteorology, Plant Sciences, Range Management, Soil Sciences,

Sustainable Development, Waste Management (A), Wildlife Ecology /Studies (B),
Zoology

University of Debrecen, Department of Earth Sciences

Faculty of Science

Areas of Study Sampling*: Agriculture, Air Resources /Air Quality, Earth Science (D),
Ecology, Ecotourism, Environmental Studies (B), Geographic Information Systems
(GIS), Geography (B,M,D), Geology /Geosciences (B,M,D), Landscape Architecture,
Meteorology (B), Soil Sciences, Urban and Regional Planning (B,M,D)

University of Szeged

College of Agriculture

Areas of Study Sampling*: Agriculture (B), Environmental Studies, Horticulture, Plant
Sciences, Resource Economics

University of Veszprem

Georgikon Faculty of Agriculture

Areas of Study Sampling*: Agriculture (M, D)

*Degree codes and study areas represent our closest equivalent.

Source: <http://www.enviroeducation.com/>

**Project for Human Resource Development for Environmental Engineers at College
of Dunaujvaros**

Questionnaire for Hungarian Accreditation Committee

Date: 24 November 2004

Prepared by the Final Evaluation Mission, JICA

1. Prioritized sectors in the environmental protection policy
2. Relation between the qualification system for environmental engineers and the academic degree (bachelor and master)
3. Accreditation records by the HAC for environment engineering related degree programs in colleges and universities in Hungary: Please refer to the attached list
4. Numbers of the graduates from the similar degree programs in colleges and universities in the country
5. The implementation organization was properly selected? College of Dunaujvaros was an appropriate organization for achieving the overall goal of the project?
6. Why accreditation for the main course is delayed?
7. Requirements for the accreditation by HAC for formulating and operating the main course
8. Will College of Dunaujvaros be able to develop more its contribution in the environmental engineering education in the country?
9. Status of College of Dunaujvaros in the accreditation system for degree programs of the environmental engineering; in the recent list of accreditation by HAC, there are no categories of college faculties in the college.
10. Prospect of the accreditation for programs in the college in the next renewal time (February 2007).

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Central European University

Department of Environmental Sciences and Policy

Areas of Study Sampling*: Agriculture, Atmospheric Sciences, Biology, Chemistry, Ecology, Energy Studies, Environmental /Ecological Design, Environmental Law, Environmental Policy (M,D), Environmental Science (M,D), Physics, Risk Analysis, Sustainable Development, Water Resources

Szechenyi Istvan University

Department of Environmental Engineering

Areas of Study Sampling*: Air Resources /Air Quality, Biology, Chemistry, Conservation Biology, Ecology, Energy Studies, Environmental Economics, Environmental Enforcement, Environmental Engineering (B), Environmental Journalism /Communications, Environmental Law, Environmental Management, Environmental Policy, Environmental Studies, Environmental Technology, Geographic Information Systems (GIS), Geology / Geosciences, Peace Studies, Conflict Resolution, Risk Analysis, Soil Sciences, Waste Management, Water Resources

University of Debrecen

Agricultural Sciences Center

Areas of Study Sampling*: Agriculture (B,D), Biology, Chemistry, Crop Science (D), Ecology, Environmental / Ecological Design, Environmental Law, Environmental Management (B), Environmental Policy, Environmental Studies, Environmental Technology, Global /International Studies, Horticulture (B,D), Landscape Architecture, Meteorology, Plant Sciences, Range Management, Soil Sciences,

Sustainable Development, Waste Management (A), Wildlife Ecology /Studies (B),
Zoology

University of Debrecen, Department of Earth Sciences

Faculty of Science

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Ecology, Ecotourism, Environmental Studies (B), Geographic Information Systems
(GIS), Geography (B,M,D), Geology /Geosciences (B,M,D), Landscape Architecture,
Meteorology (B), Soil Sciences, Urban and Regional Planning (B,M,D)

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Questionnaire for Ministry of Education

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Department of Environmental Sciences and Policy

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University of Debrecen

Agricultural Sciences Center

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University of Debrecen, Department of Earth Sciences

Faculty of Science

Areas of Study Sampling*: Agriculture, Air Resources /Air Quality, Earth Science (D), Ecology, Ecotourism, Environmental Studies (B), Geographic Information Systems (GIS), Geography (B,M,D), Geology /Geosciences (B,M,D), Landscape Architecture, Meteorology (B), Soil Sciences, Urban and Regional Planning (B,M,D)

University of Szeged
College of Agriculture

Areas of Study Sampling*: Agriculture (B), Environmental Studies, Horticulture, Plant Sciences, Resource Economics

University of Veszprem
Georgikon Faculty of Agriculture

Areas of Study Sampling*: Agriculture (M, D)

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Source: <http://www.enviroeducation.com/>

6. その他プロジェクト実績

6-1 施設調査実施状況

	月日	場所	参加者	調査目的	備考
1	Mar. 9, 2002	Baja University	Prof. Kiss, Mr. Miklos, Mr. Janai, Ms. Beáta, Ms. Éva, Experts (3)	Visiting University & Investigation of water treatment research in Hungary	
2	Jun. 19	Visiting Dunaferri (1/3)	Dr. Miklos Kovacs, Dr. Hari Laszlo, Ms. Beata Farkas, Ms. Orsolya Havellant, Ms. Eva Kovacs-Bokor, Experts (3)	Visiting & survey	Coke Oven, Sinter Plant, Blast Furnace
3	Jun. 20	Visiting Dorog	Dr. Kiss, Ms. Beáta, Ms. Havellaut Orsolya, Ms. Kovács Bokor Éva, Dr. Miklós Kovács, Experts (3)	Visiting & survey	Hazardous waste incineration plant
4	Jun. 27	Visiting Dunaferri (2/3)	Dr. Miklos Kovacs, Dr. Hari Laszlo, Ms. Beata Farkas, Ms. Orsolya Havellant, Ms. Eva Kovacs-Bokor, Experts (3)	Visiting & survey	BOF, CC, Cold Mill, Power Plant, Boiler, Electro Plating Plant, Research Center, Wastewater Treatment Plant
5	Jul. 4	Visiting Dunaferri (3/3)	Prof. Kiss, Dr. Miklos Kovacs, Dr. Hari Laszlo, Ms. Beata Farkas, Ms. Orsolya Havellant, Ms. Eva Kovacs-Bokor, Experts (3)	Visiting & survey	
6	Oct. 22	Visiting Sewage Plant in Dunaujvaros	Dr. Kiss, Mr. Miklós Horváth, Mr. István Jenei, Ms. Beáta Farkas, Ms. Havellaut Orsolya, Ms. Kovács Bokor Éva, Ms. Magdolna Orova, Experts (2)	Visiting & survey of sewage plant in Dunaujvaros	
7	Nov. 28	Visiting TÜV	Dr. Kóvács, Mr. Jenei, Experts (4)	Discussion & General information of ISO 14001 in Hungary	Budapest
8	Dec. 2, 2002	Visiting DVA	Mr. Jenei, Mr. Kovacs, Experts (3)	Visiting & survey on ISO 14000	Dunaúváros
9	July, 17 2003	Oroszlány Coal Power Plant	Ms. Marta HIBBEY, Ms. Julia BAGO, Dr. Endre Kiss, Mr. Miklos Horvath, Mr. Istvan Jenei, Dr. Laszlo Hari, Miss. Natasha Govikoglu, Mr. Miyake (Japan Embassy), Experts (4)	Visiting & survey Power Plant	Oroszlány
10	July, 25 2003	Dunaferri Energiaszolgáltató KFT	Mr. Miklos Horvath, Mr. Istvan Jenei, Mr. Gábor Hajós, Dr. Miklós Kovács, Ms. Orsolya Havellant, Ms. Éva Kovács Bokor, Miss. Natasha Govikoglu, Experts (4)	Visiting & survey Power Plant	Dunaújváros

11	July, 29 2003	Energy Center	Dr. Kiss, Ms. Havellant, Miss. Natasha Govikoglu, Experts (4)	Visiting & survey on policy of The Energy Center	Budapest
12	Sep. , 1, 2003	Dunaferr	Dr. Mikros Kovats, Experts (2)	Visiting & surveying of Steel factory	Dunaújváros
13	Sep. 9, 2003	Dunapack	Dr. Kiss, Mr. István Jenei, Dr. László Hári, Ms. Beáta Farkas, Ms. Havellant Orsolya, Ms. Kovács Bokor Éva, Mr. Attila Szilágyi, Experts (3)	Visiting & surveying of Paper factory	Dunaújváros
14	Oct. 1, 2003	Recycle of Aluminum can	Mr. Mikrós Horváth, Mr. István Jenei, Mr. Gábor Hajós, Ms. Orsolya Havellant, Dr. László Hári, Student (3), Experts (3)	Mr. Ohga come and have presentation of aluminum can recycle	Dunaújváros
15	Nov. 20, 2003	DENSO Manufacturing Hungary LTD.	Dr. Hari, Experts (4)	Visiting & survey Factory	Szekefehervar
16	Aug. 18, 2004	Sampling of Duna River Water	Ms. Farkas, Mr. Kyushin	Pesticide Analysis	Budapest

出典：派遣専門家、2004年12月

6-2 供与された参考文献及び講義録等

1. 長期専門家が作成した講義録・技術文献類

Part 1: Energy Saving Technology and Recycle Technology

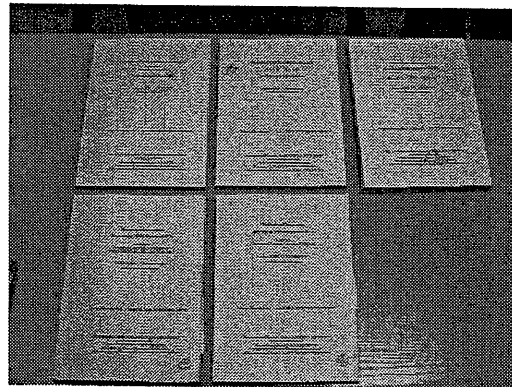
Part 2: Energy Saving Basic Technology Lecture

Part 3: Wastewater Pollution Prevention Technology

Part 4: Presentation and Manual of Equipment

2. 短期専門家が提供した講義録

1. Air Pollution Assessment
2. Optical Properties of Aerosols
3. Technique for Measurement and Calculation
4. Automotive Catalysts
5. Bioremediation
6. Energy Saving and Global Warming
7. Air Pollution Control Technology and energy Issues
8. Protection and Control Techniques for Noise and Vibration
9. Waste Gasification and Ash Melting Technology
10. Promotion for Energy Conservation
11. Life Cycle Assessment



3. 産業技術総合研究所 (AIST) の関連公刊資料から提供されたもの

1. A Microbiological Overview of Biological Waste Water Treatment (translated by Dr. Csiby)
2. Air Pollution Control Technology in Japan (no translation)
3. Atmospheric Chemistries related to Environmental Issues (translated by Dr. Csiby)
4. Chemical Pollution (translated by Dr. Csiby)
5. Control of Motor Vehicle Emissions (translated by Ms. Éva)
6. Emission and Transport of Acidic Air Pollutants (translated by Dr. Csiby)
7. Evolution of MSW Management in Japan (translated by Ms. Éva)
8. Global Warming and Stratospheric Ozone Depletion (translated by Ms. Éva)
9. Groundwater Environment (no translation)
10. Measurement and Collection Technology on Source Dust (translated by Dr. Csiby)
11. Measurement of Gaseous Air Pollutants (no translation)
12. Measurement of Water Pollution (translated by Dr. Csiby)
13. Noise Control (no translation)
14. Practical Method of Air Pollution Assessment in Japan (translated by Dr. Csiby)
15. Recycling in Japan (translated by Ms. Éva)
16. Remediation of Contaminated Soil (no translation)
17. State of Air Pollution in Japan (no translation)

18. Technological Overview of HAPs Control (no translation)
19. Utilization of Biomass Energy (translated by Ms. Éva)
20. Waste Incineration and Dioxin Control (translated by Ms. Éva)
21. Wastewater Treatment (translated by Dr. Csiby)
22. Water Pollution in Coastal Areas (no translation)

6-3 地域関係者のためのワークショップ・セミナー

Date	Name	Presenter	Contents	Place	Remarks
Nov. 7 2002	Day of Science	Dr. Ohuchi Mr. Mizuta Mr. Kyushin Mr. Ando Prof. Kiss Mr. Miklós Horváth Mr. Gábor Hajós Mr. Jenei Mr. Miklós	[My Environmental Policy] [Case Study of Energy Saving Technology in Japan] [Recent Wastewater Treatment Technology in Japan] [Key Point for Success of ISO 14000/Environment Management System]	University of Dunaujvaros	
Nov. 14 2002	Work shop in Dunaujvaros	Dr. Ohuchi Mr. Mizuta Mr. Kyushin Mr. Ando Dr. Yamamoto Dr. Miklós Kovács	[My Environmental Policy] [Policy of Environmental Protection in Kashima City and Tackling on Dioxin Issue in Japan] [Ecology and Wastewater Treatment] [[ISO 14000 in Local Governments of Japan]	University of Dunaujvaros	for Dunaujváros citizens, students, teacher and local government
Nov. 18, 19 2002	Gyor	Dr. Ohuchi Mr. Mizuta Mr. Ando Dr. Kaneyasu Mr. Gábor Hajós	[Environmental Policy] [Policy of Environmental Protection in Kashima City and Tackling on Dioxin Issue in Japan]] [[ISO 14000 in Local Governments of Japan]	Győr	for Győr, Local government Regional authority, NGO and citizens
Dec. 16, 18 2002	REC Seminar	Mr. Mizuta Mr. Ando Mr. Kyushin Mr. Jenei Istvan	<ul style="list-style-type: none"> • Waste management of in local government in Japan and recent recycle technology • Role of local government in Japan and fundamental wastewater treatment technology • Basic element of ISO 14,000 • Introduction of environmental management system in a metallurgical plant 	Szeged	Mr. Jenei present two lectures
Apr. 8, 9 2003	Day of Science	Dr. Ohuchi Mr. Mizuta Mr. Jenei Istvan	<ul style="list-style-type: none"> • Utilization of recycle • Energy save system in Japan to protect earth warming • Development of high efficient Ozonyzer 	Vesprem	Dr. Ohuchi attend

Aug. 26, 2003	Japan-Hungarian Workshop on Regional Environmental Issues	Dr. Urushigawa Dr. Obuchi Mr. Kazama Mr. Istevan Jenei	<ul style="list-style-type: none"> - Hazardous Waste and the Environmental Awareness of the Citizens - Motor Vehicle Emission Control - Countermeasures for the Global Warming Issue - Environmental Activity in a Japanese Local Government 	Gyor	Attendant: Dr. Ohuchi Mr. Mizuta Mr. Kyushin
Aug. 27, 2003	Open Day on Environmental Protection	Dr. Obuchi Dr. Urushigawa Mr. Kazama Mr. Hajos Gabol	<ul style="list-style-type: none"> - Evolution of Automotive Technology by Environmental Demands - How would you decide it (Waste and Hazardous waste treatment)? - Countermeasures for Global Warming Issue - My experiences on Japanese Environmental Protection 	Dunaújváros	Attendant: Dr. Ohuchi Mr. Mizuta Mr. Kyushin
Sep. 4, 2003	Seminar in "the society of Metallurgy, Hungary"	Mr. Kazama Dr. Kovats Miklos	<ul style="list-style-type: none"> - Policy and Present Status of Japanese Steel Industry for Tackling Global Warming Issue - Experience of ISO14000 in Japan 	Dunaújváros	Attendant: Dr. Ohuchi Mr. Mizuta
Nov. 5, 2003	Day of Science	Dr. Ohuchi Mr. Mizuta Mr. Kyushin Prof. Kiss Dr. Miklós Kováts Mr. Mikrós Horváth Mr. Gabór Hajós Mr. István Jenei Dr. László Hári	<p>[A daily Life and Environment] [Necessity and effectiveness of Energy Conservation & Recycling for our Sustainable Global Life] [Recent Trend of Drinking Water Technology in Japan and Comparison of Law and Surface Water Situation between Japan and Hungary] [Hidrengerműi emulziós-olajos szennyvizek tisztítása] [Levegőtisztaságvédelmi mérőhálózat Japánban] [Az újrahasznosítás és újrafelhasználás alapija]</p>	University of Dunaújváros	
Aug. 24, 2004	Presentation in Gyor	Mr. Horikawa Dr. Hári Mr. Mizuta Mr. Kyushin	<ul style="list-style-type: none"> - Energy Saving Technology and Energy Management Method in the Factory - Aluminum Can Recycling System and Technology - Waste Gasification & Melting Technology and its Application in Japan - Development of Biochemical Wastewater Treatment Technology 	Gyor	

Sep. 8, 2004	Workshop in Dunaujvaros	Mr. Kyushin Dr. Narita Mr. Mizuta Dr. Kiss	<ul style="list-style-type: none"> • Development of Biochemical Wastewater Treatment Technology • Application of Life Cycle Assessment in Japan • Waste Gasification and Melting Technology and its Application in Japan • Effect of DEED Project on College of Dunaujvaros 	Dunaujvaros	
Nov. 18, 2004	Day of Science	Mr. Mizuta Mr. Kyushin Prof. Kiss Dr. Miklós Kováts Mr. Mikrós Horváth Mr. Gábor Hajós Mr. István Jenei Dr. László Hári Petroviviczukijne Angerer Ildiko	<ul style="list-style-type: none"> • Green Energy Supply Technology-The most Hopeful Biomass Energy • Activated Sludge Treatment in Laboratory 	Dunaujvaros	

出典：派遣専門家、2004年12月

6-4 履修科目シラバスの事例

1. 計測技術分野

Environmental Protection Measurements III

学期当りの授業時間数：講義 16 時間、実習 44 時間

3 単位

週	講義と実習の内容
1.	Goals, types and characteristics of air pollution tests; System, duration and regularity of the measurements; Measurement networks; Sampling procedures and tools; Sampling of gases and dusts, Gas samplers and dust samplers; Dust concentration meters.
2.	Sampling of gases and dusts, Gas samplers and dust samplers; Dust concentration meters; Physical principles of measuring the concentration of CO, CO ₂ , SO ₂ , NO, NO ₂ , metilmerkaptan, freons, and ozone; Infra-red absorption-based measurement equipment; Chemiluminescence-based measurement equipment.
3.	Measurement equipment employing the principle of ultra violet and visible light ray absorption and transmission; Electrochemical cells; Electrochemical measurement equipment; Air quality protection measurement networks and measurement equipment of measuring stations.
4.	Operating principle of the gas chromatograph; carrying out measurements by gas chromatograph (demonstration measurement).
5.	Laboratory session
6.	Laboratory session
7.	Laboratory session
8.	Laboratory session
9.	Laboratory session
10.	Laboratory session
11.	Laboratory session
12.	Laboratory session
13.	Laboratory session
14.	Laboratory session
15.	Laboratory session

1. Measuring the concentration of the NO_x concentration of exhaust gases by different methods
2. Measuring the concentration of the CO_x concentration of exhaust gases by different methods
3. Measuring SO₂ by absorption chemical method
4. Carrying out measurements by infra-red light spectrophotometer
5. Measuring the concentration of ozone; elimination of ozone
6. Measuring the concentration of dust by konimeter
7. Measuring the concentration of dust by a two-stage dust sampler
8. Carrying out measurements by gas chromatograph I.
9. Examining the physical characteristics of different soils
10. Noise and vibration metering I.
11. Examining the chemical characteristics of different soils

Environmental Protection Measurements IV

学期当りの授業時間数：講義 12 時間、実習 48 時間

3 単位

週	講義と実習の内容
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1.	Operational principle of the gas chromatography mass spectrometer; Demonstration measurement.
2.	Operational principle of the atomic absorption spectrophotometer; Demonstration measurement.
3.	Operation of TOC (Total Organic Carbon) analyser, Demonstration measurement.
4.	Laboratory session
5.	Laboratory session
6.	Laboratory session
7.	Laboratory session
8.	Laboratory session
9.	Laboratory session
10.	Laboratory session
11.	Laboratory session
12.	Laboratory session
13.	Laboratory session
14.	Laboratory session
15.	Laboratory session

12. Decomposing of NO_x and SO₂ in corona discharge
13. Bacteriological examination of soils
14. Carrying out measurements by mass spectrometer
15. Defining the concentration of heavy metals by atomic absorption spectrophotometer
16. Carrying out measurements by TOC analyser
17. Precipitation by electrostatic dust precipitator
18. Examination of cyclones
19. Water analysis by photometric means
20. Water analysis by chlorimetric means
21. Water purification by ozone, hydrogen peroxide, chloride compounds and by the combination of these
22. Electromagnetic, optical and thermal environmental pollution
23. Noise and vibration metering II.
24. Waste treatment and selection by vibration and other methods
25. Carrying out measurements by gas chromatograph II

2. 省エネルギー分野

ENERGY SAVING

週当りの授業時間数：講義 2 時間、実習なし

3 単位

週	講義
1.	Basic terms and aspects of energy saving;
2.	General global environmental problems; Energy crisis; Primary and secondary energy carriers; Preservation of fossil fuels; Renewable energy sources;
3.	Biomass as an energy carrier; Biomass energy utilisation technology;
4.	Concept and methods of energy preservation;
5.	Review of thermology and electricity studies; Energy transformation and conversion
6.	Heating, heat cycles and heating energy; Heating technology of liquid fuels; Low NO _x and high temperature heating technology
7.	Progress exam

8.	Additional energy preservation methods, heat exchangers, pumps; Waste-heat reusage possibilities in the fields of metallurgy and steel manufacturing;
9.	Nuclear, water and wind power plants; Electric energy;
10.	Energy saving in case of engines;
11.	Energy saving and reusage in solid waste processing; Refuse burners; RDF technology;
12.	Environmental impacts of communal energy consumption;
13.	Environmental impacts of energy consumption in relation to industry and traffic;
14.	Environmental impacts of air pollution caused by the energetic industry;
15.	Progress exam

出典：DF、2004年12月

7. ドナウーイヴァーロシュ工科大学組織図

