



**ЭКОЛОГИЧЕСКИЙ МЕНЕДЖМЕНТ
В САНКТ-ПЕТЕРБУРГСКОМ УНИВЕРСИТЕТЕ
ПУТЕЙ СООБЩЕНИЯ**

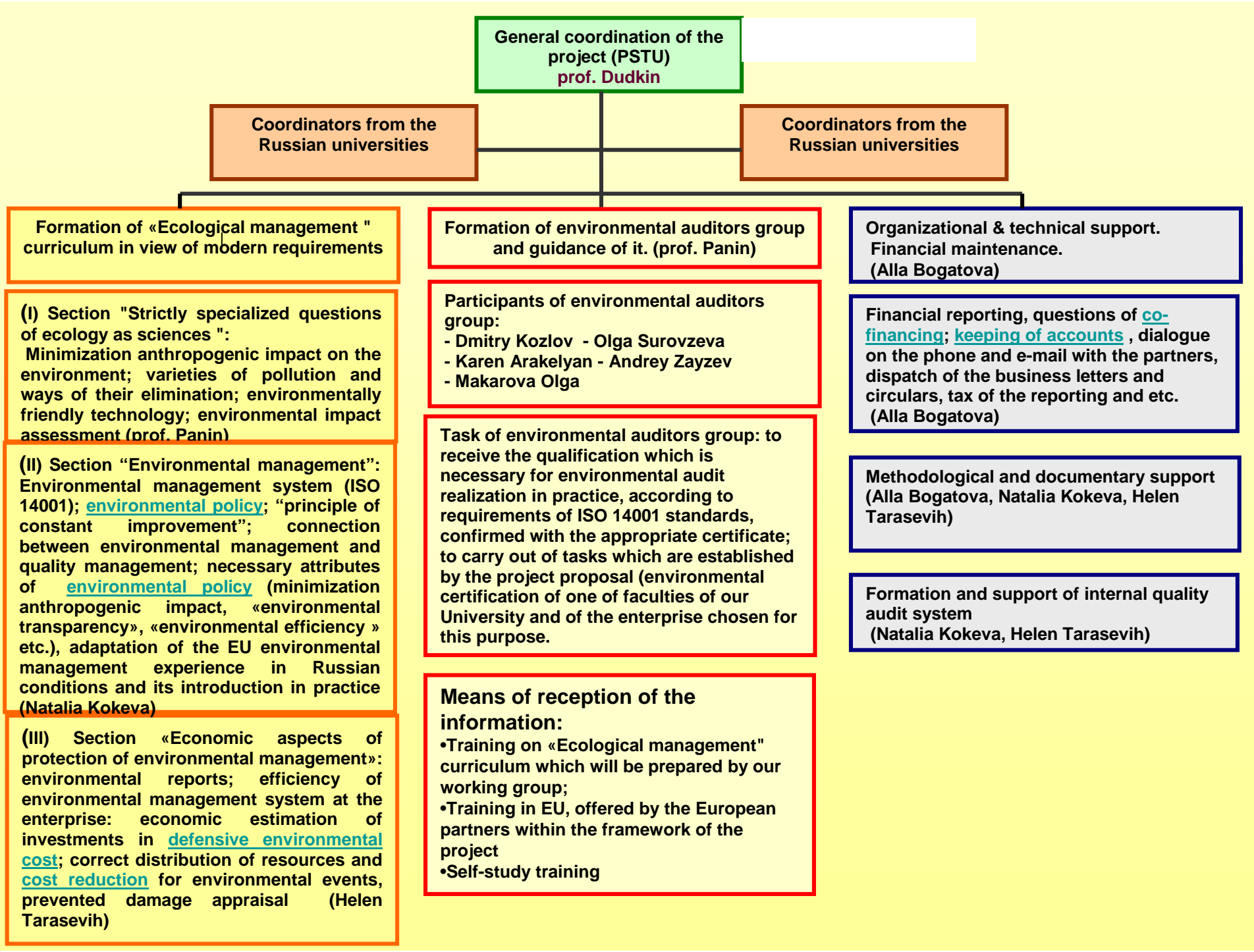
**ENVIRONMENTAL MANAGEMENT AND ECOLOGY at
The St.-Petersburg University of Means of communication**



12/02/2008

Paderborn





General coordination of the project (PSTU)
prof. Dudkin

Coordinators from the Russian universities

Coordinators from the Russian universities

Formation of «Ecological management " curriculum in view of modern requirements

(I) Section "Strictly specialized questions of ecology as sciences ":
Minimization anthropogenic impact on the environment; varieties of pollution and ways of their elimination; environmentally friendly technology; environmental impact assessment (prof. Panin)

(II) Section "Environmental management":
Environmental management system (ISO 14001); environmental policy; "principle of constant improvement"; connection between environmental management and quality management; necessary attributes of environmental policy (minimization anthropogenic impact, «environmental transparency», «environmental efficiency » etc.), adaptation of the EU environmental management experience in Russian conditions and its introduction in practice (Natalia Kokeva)

(III) Section «Economic aspects of protection of environmental management»: environmental reports; efficiency of environmental management system at the enterprise: economic estimation of investments in defensive environmental cost; correct distribution of resources and cost reduction for environmental events, prevented damage appraisal (Helen Tarasevih)

Formation of environmental auditors group and guidance of it. (prof. Panin)

Participants of environmental auditors group:
- Dmitry Kozlov - Olga Surovzeva
- Karen Arakelyan - Andrey Zayzev
- Makarova Olga

Task of environmental auditors group: to receive the qualification which is necessary for environmental audit realization in practice, according to requirements of ISO 14001 standards, confirmed with the appropriate certificate; to carry out of tasks which are established by the project proposal (environmental certification of one of faculties of our University and of the enterprise chosen for this purpose.)

Means of reception of the information:
•Training on «Ecological management" curriculum which will be prepared by our working group;
•Training in EU, offered by the European partners within the framework of the project
•Self-study training

Organizational & technical support. Financial maintenance. (Alla Bogatova)

Financial reporting, questions of co-financing; keeping of accounts , dialogue on the phone and e-mail with the partners, dispatch of the business letters and circulars, tax of the reporting and etc. (Alla Bogatova)

Methodological and documentary support (Alla Bogatova, Natalia Kokeva, Helen Tarasevih)

Formation and support of internal quality audit system (Natalia Kokeva, Helen Tarasevih)

Общая координация
проекта со стороны ПГУПС
(профессор Дудкин)

Координаторы от
российских
университетов

Координаторы от
российских
университетов

Формирование учебного курса
«Экологический менеджмент» с учетом
современных потребностей

I) Раздел «Узкоспециальные вопросы экологии как науки»: минимизация техногенного воздействия на окружающую среду; виды загрязнения и способы их устранения; экологические охраняемые технологии. (Панин).

(II) Раздел Экологический менеджмент: Система экологического менеджмента (ISO 14001); система экологического менеджмента; экологическая политика; принцип постоянного улучшения; связь экологического менеджмента и менеджмента качества; необходимые признаки экологической политики, адаптация и внедрение европейского опыта экологического менеджмента к российским условиям (Коклева)

(III) Раздел «Экономические аспекты экологии»: Экологическая отчетность; эффективность систем управления окружающей средой на предприятии; экономическая оценка инвестиций на защиту окружающей среды; правильное распределение ресурсов и снижение затрат на экологические мероприятия (Тарасевич)

Создание группы экологических
аудиторов и руководство ею. (Панин)

Participants of environmental auditors
group:
- Dmitry Kozlov - Olga Surovzeva
- Karen Arakelyan - Andrey Zayzev
- Makarova Olga

Задачи группы экологических
аудиторов: получить квалификацию,
необходимую для осуществления
экологического аудита в соответствии с
требованиями стандарта ISO 14001,
подтвержденную соответствующим
сертификатом; выполнить задачи,
установленные проектной заявкой
(экологическая сертификация одной из
кафедр Университета и выбранного для
этой цели предприятия)

Способы получения информации:
Подготовка по учебному курсу
«Экологический менеджмент»,
подготовленной нашей рабочей
группой;
Стажировки в EU, предлагаемые
европейскими партнерами в
рамках проекта
Самостоятельная подготовка

Организационно-техническое
сопровождение и финансовое
обеспечение

Финансовая отчетность, вопросы
совместного финансирования,
бухгалтерский учет, общение по
телефону и e-mail с партнерами,
рас-сылка информационных писем,
сбор отчетности (Богатова)
Методическое и документарное
обеспечение учебного процесса группы
(Богатова, Тарасевич, Коклева)

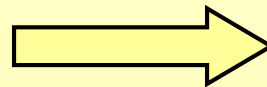
The modern concept of environmental management

СОВРЕМЕННАЯ КОНЦЕПЦИЯ ЭКОЛОГИЧЕСКОГО МЕНЕДЖМЕНТА

Protection of humanity and natural habitat from nature forces

защита человечества и среды его обитания от сил природы

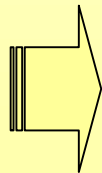
XX ВЕК



Protection of a nature against the human

защита природы от самого человека

СТРАТЕГИЯ



Кардинальное изменение экономического сознания

Cardinal revision of economic consciousness

Ориентировка на экологическое производство

Orientation to environmental safe industrial practice

“environmental” manufacture

Экологическое производство → производство, построенное на приоритетах обеспечения цивилизованной жизнедеятельности человека через обогащение природы; гармонию развития человека в соответствии с развитием природы

Maintenance of civilized human vital functions through enrichment of a nature; harmony of development of the human according to development of a nature

ОСНОВНЫЕ ЧЕРТЫ ЭКОЛОГИЧЕСКОГО ПРОИЗВОДСТВА

The basic features of “environmental” manufacture

Гармония человека
и природы

Harmony of the human and nature

Диверсифицированное
безотходное
производство

Diversification nonwaste production

Экологически
благоприятные
технологии.

Environmental safe practice

«экологичность»
продукции

Environmental safe produce

Экологическая
культура персонала

Environmental organizational culture

Экологическое
качество

Quality management

Экологический
менеджмент

Environmental management

ЧТО ТАКОЕ «ЭКОЛОГИЧЕСКИЙ МЕНЕДЖМЕНТ»?

What means the Enviromental management?

ü Новый тип управления, принципиально ориентированный на формирование и развитие экологического производства и экологической культуры жизнедеятельности человека

The new type of management focused on formation and development of “environmental” manufacture and ecological culture of human vital functions

ü тип управления, построенный на социально-экономическом и социально-психологическом мотивировании гармонии взаимоотношений человека с природой

The type of management constructed on social-economic and social - psychological motivation of harmony of mutual relation of the human with a nature

ü концепция экологического менеджмента включает полный комплекс проблем управления, связанных с экологическими процессами как объектом управления

It is a full complex of problems of the management connected to environmental processes which act as object of management .

ЭКОЛОГИЧЕСКОЕ ОБРАЗОВАНИЕ

Environmental education is dominant factor at formation of the Environmental management concept



What our problems are?



PROBLEMS OF ENVIROMENTAL EDUCATION

ПРОБЛЕМЫ ЭКОЛОГИЧЕСКОГО ОБРАЗОВАНИЯ

q Any special subject is formed on the certain base of academic education. On what base to prepare the experts in the field of ecological management?

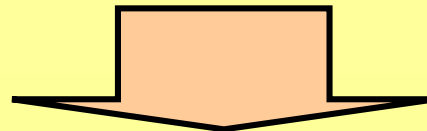
q Любая специализация строится на определенной базе фундаментальной подготовки. На какой базе готовить специалистов в области экологического менеджмента?

engineers and technicians training

socio-economic training

q Many are of the opinion that a basis of ecological management are knowledge in the field of technology, engineers and technicians knowledge. This opinion is erroneous. It does not correspond to modern lines of development of management.

q Многие ошибочно считают, что основой экологического менеджмента являются знания в области технологии, инженерно-технические знания. Это не соответствует современным тенденциям развития управления.



ОСНОВА РЕШЕНИЯ ПРОБЛЕМ ЭКОЛОГИЧЕСКОГО МЕНЕДЖМЕНТА - ЧЕЛОВЕК

The human is the basis for the decision of problems of Environmental management.

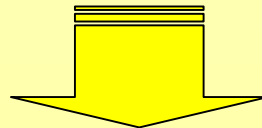
Determinants of Environmental management

Определяющие факторы экологического управления

ü human, his system of values, motivation and incentive, consciousness and awareness, estimation of environmental problem significance, understanding of a environmental management role in the further development of manufacture

ü человек, его ценности и мотивы, его сознание и поведение, его заинтересованность, оценка важности проблем, понимание их роли в дальнейшем развитии производства

accordingly...



таким образом...

q специальность “Экологический менеджмент” должна строиться на базе социально-экономического образования. А инженерное образование обязательно должно включать компоненты экологических знаний.

q The special subject " Environmental management " in a higher school should be constructed on the basis of social and economic education. And engineering education necessarily should include components of Environmental knowledge.

ЭКОЛОГИЧЕСКОЕ ОБРАЗОВАНИЕ В ПГУПС

Environmental education in PGUPS

Departments which render educational services in the field of ecology and Environmental.

Ecology



§environmental research —
исследование окружающей среды

§environmental engineering — методы
охраны окружающей среды

“Engineering ecology” department

“Prospecting and railway
projecting” department

Environmental management



ISO 14001

§Methods of management of sustainable use of natural
resources (usage, transportation, of enterprises) -методы
управлением запасами природных ресурсов, их
использованием, транспортированием, а также
размещением производства.

§Environmental safety management, waste recycling and
waste reuse management - управление утилизацией и
использованием отходов, управление экологической
безопасностью

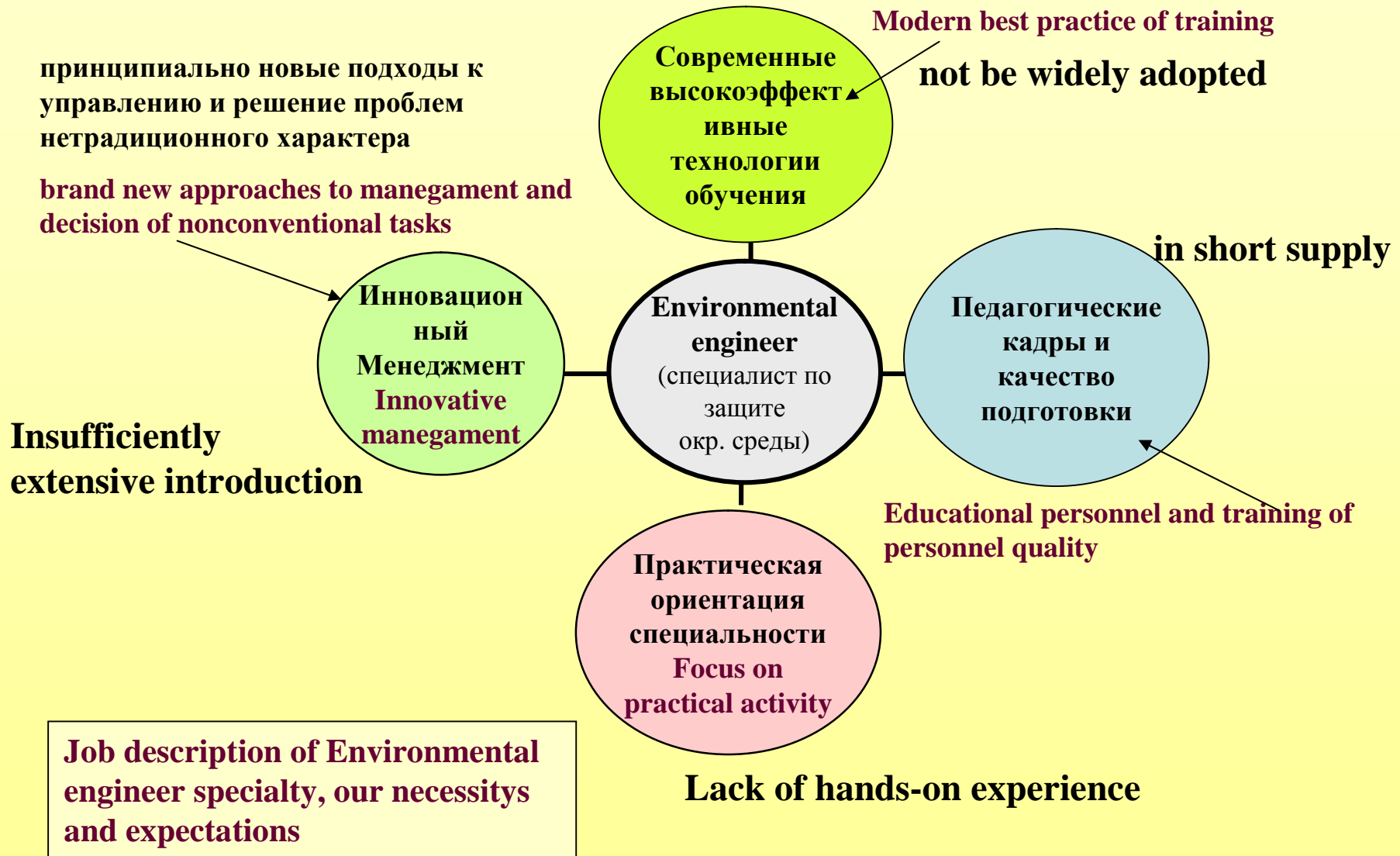
§Regional environmental health management - управление
региональной экологической обстановкой.

“Industrial and a municipal transportation” department

“Economy and management in construction ” department

“Marketing and management ” department

ПРОФЕССИОГРАММА СПЕЦИАЛЬНОСТИ «Экологический менеджер» и наши потребности и ожидания от проекта



Treatment of the ecological questions at The Petersburg State University of Means of Communication.

Now problems of ecology and protection of an environment are very urgent. Especially it concerns **nature-technical system "the railway - an environment»** as influence of objects of a railway transportation on such environmental external systems as hydrosphere, an atmosphere, biosphere, lithosphere etc. is extremely great.

Interaction of the railway with an environment can be either **«benevolent»**, or **"contentious"**. Now such interaction in the most part develops on the second way. The aggregate of measures on achievement of «benevolence " has insufficient and unsystematic character. In such conditions formation of ecological knowledge fundamental base for the personnel of transport branch is extremely important. In modern conditions when the ecological situation which has developed in the world, causes the proved alarm, target actions on formation of ecological thinking at the experts working in transport sphere are necessary.

Therefore many departments at various faculties of PGUPS include in the curriculums on different disciplines the questions connected to protection of an environment and minimization of anthropogenic impact on the environment. All divisions cover various directions of ecological and environmental activity in the lectures and on seminar employment.

I. Department of “Engineering ecology”.

Department prepares the experts in a specialty named «Engineering protection of an environment ".

Specialty for which employment with use of the ecological information will be carried out.	The name of a curriculum or discipline	Case in point
All specialties of university	“Ecology”	The general concepts and representations about biosphere and the ecological legislation, and also about methods and means of an environmental protection.
“Environmentalist” environmental engineer	“General ecology”	Ecological approach to an environmental. Formation of the ecological thought at the engineer

“Environmentalist” environmental engineer	“Economic geography”	Introduction in soil science, a hydrology, climatology and meteorology, landscape etc.
	“Industrial ecology”	Techno sphere and its influence on biosphere, concepts of their harmonious interaction
	“Fundamentals of toxicology”	Influence of the substances polluting biosphere on human body
	“Theoretical fundamentals of environmental protection”	Protection methods and means of an atmosphere, hydrosphere, lithosphere.
	“Environmental management”	State policy in the field of an environmental protection, economic relations in the system “state - nature management”
	“Ecological examination, estimation of adverse environmental impact and certification.”	Regulatory base in the field of realization of ecological certification, licensing and system of ecological certification
	“Devices for the control of an environment and ecological monitoring”	Kinds of ecological monitoring and its task. The industrial ecological control. Means and methods of the ecological control

The faculty has two kinds of laboratories - educational laboratories (4) and research ecological laboratory.

Educational laboratories (4): we spend a scheduled ecological practical work for all specialties. For this purpose there are four laboratories equipped with the educational equipment which allows to perform works on experimental acquaintance with methods of sampling of polluting substances, their analysis, calculation of emissions from various manufactures, tests of the polluted water and some other.

Research ecological laboratory: it is intended for analysis on the contents of polluting substances in air, water, soils. For this purpose the laboratory is equipped of modern analytical equipment, allowing analyzing presence of heavy metals ions, mineral oil, phenol, industrial gases and steams of organic substances in air.

Directions of scientific - practical activities: services in development and the coordination in bodies of the state supervision of ecological projects (" maximum-permissible emissions ",

“accumulation of waste products and limits of accommodation”). The next year (2008) granting services in development and introduction of internal ecological audit methodology for the enterprises of railway transportation is planned.

Customers are the enterprises of railway transportation and motor transport, and also some enterprises of city.

II. “Department of “Prospecting and railway projecting”

Specialty for which employment with use of the ecological information will be carried out.	The name of a curriculum or discipline	Case in point
<ol style="list-style-type: none"> 1. «Railway construction, rails, track facilities» 2. Bridges and tunnels» 3. “Organization of conveyance” 4. “Engineering protection of an environment” 	<ol style="list-style-type: none"> 1) “Ecology” 2) “Ecological estimation of design decisions” 	<ol style="list-style-type: none"> I. Pernicious influence of railway transportation на component environment. 2. Tasks and the purposes of engineering - ecological researches for development of project documentation 3. Questions of ecological support of building projects. 4. The natural emergency situation arising at operation of objects of railway transportation. 5. Features of projecting in a unfavorable weather conditions 6. <u>Practical methodologies:</u> “Calculation of noise working conditions on wayside territories”; “Calculation of scope of atmospheric emissions of polluting substances” etc.

Under the editorship of professor E.S.Svintsov managing department in 2006 the manual "Ecological substantiation of design decisions» was issued.

III. Department of “Industrial and a municipal transportation”

Specialty for which employment with use of the ecological information will be carried out.	The name of a curriculum or discipline	Case in point
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«Railway construction, rails, track facilities»		
Special subject 1: Road building for railways industrial transport	<ol style="list-style-type: none"> 1. Special types of transport. 2. General layout and industrial transport 3. Motor roads 4. Railway system 	<ol style="list-style-type: none"> 1. Environmental management. 2. Use of environmentally conscious materials 3. Recultivation of soils 4. Application of modern technologies and the designs providing environmental safety.
Special subject 2: Road building of main-line railways.	<ol style="list-style-type: none"> 1. Motor roads 2. Railway system 3. Rolling stock and safety of traffic on railways industrial transport 4. The organization, planning and management of track facilities. 	

In the short-range plans of department is introduction in the curriculum for all specified specialties the discipline “Ecology on industrial transport ”.

IV. Department of “Economy and management in construction”

Specialty for which employment with use of the ecological information will be carried out.	Name of curriculum	Case in point
<ol style="list-style-type: none"> 1. “Economy management and in construction». 2. “Standardization, certification and metrology” 3. “Engineering protection of an environment ”. 	<ol style="list-style-type: none"> 1. “Economic of nature management” 2. “Economic of quality” 	<ol style="list-style-type: none"> 1. The integrated economic estimation of ecological damage 2. Structure and definition of capital investments for ecological targets. 3. Structure and definition of operation expenses for objects which are intended for protection of an environment. 4. Economic efficiency of water-security actions realization 5. Estimation of the

		prevented economic damage from pollution of an atmosphere, ground and water resources.
		6. Financing of environmental measures
		7. Connection between environmental management and a quality management.

V. Department of "Marketing and management"

Specialty for which employment with use of the ecological information will be carried out.	Name of curriculum	Case in point
1. «Marketing» 2. «Management» 3. "Economy managements and on transport»	1) «Marketing in industrial sector and fields of activity» 2) «Marketing» 3) «Fundamentals of Management»	1. System of environmental management (ISO 14001); 2. Ecological policy; a principle of constant improvement 3. The integral attributes of an ecological policy 4. Introduction of the European experience of ecological management in Russia and its adaptation to the Russian conditions

VI. Courses of staff retraining and professional skill improvement.

Specialty for which employment with use of the ecological information will be carried out.	Name of curriculum	Case in point
Leaders, top-managers and executives managers of railways industrial transport	"Guaranteeing of safety of traffic on industrial railway transportation".	1. Environmental engineering and environmental safety 2. Environmental laws. 3. Environmental criminology 4. Environmental education and training 5. Revealing and investigation of ecological crimes.