



NTU "KhPI"

CEN-EAST

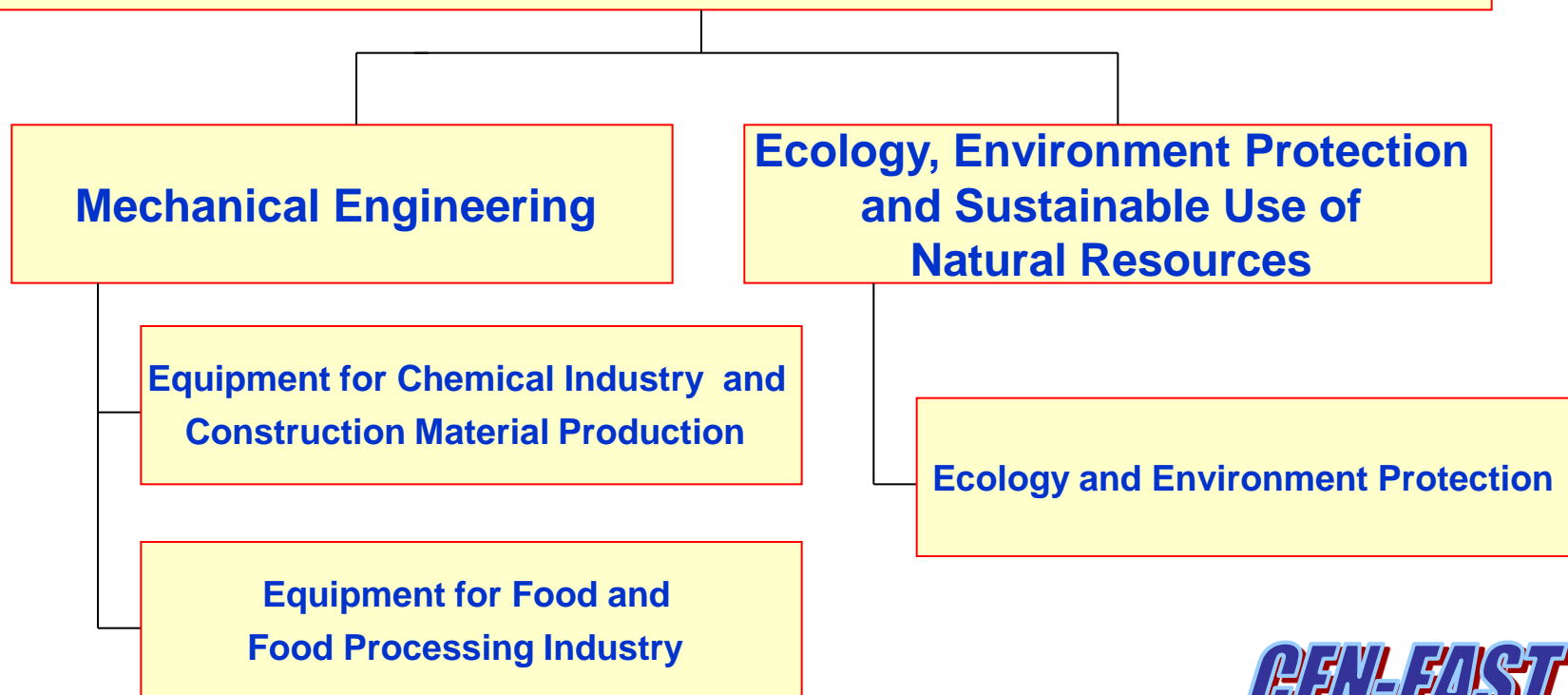
Reporter:

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**The CENEAST project runs on the basis of
2 departments at NTU “KhPI”:**

- **Chemical Equipment and Industrial Ecology;**
- **Labour and environment protection**

**Department of Chemical Equipment and Industrial Ecology
arranged his education training programmes for
bachelors, specialists and masters degrees in specialities**



Annual issue of specialists

**Equipment for Chemical
Industry and Construction
Material Production**

**Equipment for Food and
Food Processing Industry**

**Ecology and Environment
Protection**

BSc/specialists

**15
Bachelor of Mechanical
Engineering**

**15
Bachelor of Mechanical
Engineering**

**25
Bachelor of Ecology**

**15
Engineer - mechanic**

**15
Engineer - mechanic**

**15
Engineer-Ecologist-
Technologist**

Master

**10
Professional in the field of
Mechanical Engineering**

**10
Professional in the field of
Mechanical Engineering**

**10
Professional in the
Ecology**



Masters of the department of Chemical Equipment and Industrial Ecology can continue their post-graduate education at NTU “KPI” in the following fields of study:

- *Ecological safety (Sector of science «National security»);***
- *Machinery and apparatus for chemical production (Sector of science «Technical Science»).***

According to main tasks of WP2 in NTU «KhPI» for Syllabus modernization is offered to use:

- **9 European credit modules for Bachelors;**
- **5 European credit modules for Masters;**
- **2 European credit modules for the whole range students Syllabus that used in programs of different levels.**

The amount of courses the new modules will be implemented – 21.

IMPLEMENTATION OF EUROPEAN CREDIT MODULES IN BACHELOR'S SYLLABUS

Themes of European Credit modules	Syllabus in NTU "KhPI" with number of ECTS credits
Introduction to sustainable built environment	Introduction into specialty (2,0 ECTS)
Energy audit for buildings	Equipment assembly and maintenance (2,0 ECTS)
Energy efficiency in engineering systems	Engineering systems theory (4,0 ECTS)
Sustainable renovation of houses	Equipment anticorrosive protection (4,0 ECTS)
Affordable Built Environment	Environmental state modelling and forecasting (5,0 ECTS)
Introduction to renewable energy	Environment anthropogenic load measurement (4,0 ECTS)
Construction materials for sustainable built environment	Foundations of construction materials production (2,0 ECTS)
Geographical information systems	Geoinformation technologies (5,0 ECTS)
The ecology of the built environment	The ecology of the built environment (5,0 ECTS)
	Industrial ecology foundations (3,0 ECTS)
	Technoecology (2,0 ECTS)

IMPLEMENTATION OF EUROPEAN CREDIT MODULES IN BACHELOR'S / MASTER'S SYLLABUS

Themes of European Credit modules	Syllabus in NTU "KhPI" with number of ECTS credits
Introduction to Environmental Quality, Human Health and the Built Environment	Life safety (1,5 ECTS)
Technogenic problems in 21 st century	Biosphere protection equipment (7,0 ECTS)
	Ecological safety (4,5 ECTS)
	Technoecology in the branch (1,5 ECTS) Civil protection (1 ECTS)

IMPLEMENTATION OF EUROPEAN CREDIT MODULES IN MASTER'S SYLLABUS

Themes of European Credit modules	Syllabus in NTU "KhPI" with number of ECTS credits
Advanced construction technologies for energy efficient buildings	Fundamentals of industrial construction and sanitary equipment (3,0 ECTS)
Life cycle of the sustainable built environment	Equipment and fundamentals of environmentally-friendly technologies with the application of CAD (7,0 ECTS)
Network analysis for local systems	Systems theory in ecology (3,0 ECTS)
Climate, architecture and energy saving	New construction materials (3,0 ECTS)
The agencies of territorial and sustainable development governance	Technogenic and ecological safety governance (4,0 ECTS)

Courses for implementation European credit modules

1. Components of module «Introduction to sustainable built environment»

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Introduction into specialty	2,0	Normative	1	1	Equipment for Chemical Industry and Construction Material Production

2. Components of module «Energy audit for buildings»

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Equipment assembly and maintenance	2,0	Selective	7	4	Equipment for Chemical Industry and Construction Material Production Equipment for Food and Food Processing Industry

Courses for implementation European credit modules

3. Components of module «Energy efficiency in engineering systems»

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Engineering systems theory	4,0	Selective	5	3	Equipment for Chemical Industry and Construction Material Production

4. Components of module «Sustainable renovation of houses »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Equipment anticorrosive protection	4,0	Selective	8	4	Equipment for Chemical Industry and Construction Material Production Equipment for Food and Food Processing Industry

Courses for implementation European credit modules

5. Components of module « Affordable Built Environment »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Environmental state modelling and forecasting	5,0	Normative	7	4	Ecology and Environment Protection

6. Components of module « Introduction to renewable energy»

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Environment anthropogenic load measurement	4,0	Normative	7	4	Ecology and Environment Protection

Courses for implementation European credit modules

7. Components of module « Construction materials for sustainable built environment »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Foundations of construction materials production	2,0	Selective	8	4	Equipment for Chemical Industry and Construction Material Production

8. Components of module « Geographical information systems »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Geoinformation technologies	5,0	Selective	6	3	Ecology and Environment Protection

Courses for implementation European credit modules

9. Components of module « The ecology of the built environment »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
The ecology of the built environment	5,0	Normative	3	2	Ecology and Environment Protection
Industrial ecology foundations	3,0	Selective	7	4	Equipment for Chemical Industry and Construction Material Production
Technoecology	2,0	Selective	6	3	Technical specialities

Courses for implementation European credit modules

10. Components of module « Introduction to Environmental Quality, Human Health and the Built Environment »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Life safety	4,0	Selective	6	3	Technical specialities

11. Components of module « Technogenic problems in 21st century »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Biosphere protection equipment	6,0	Normative	10	5	Ecology and Environment Protection
Ecological safety	4,5	Selective	6	3	Technical specialities
Technoecology in the branch	1,5	Selective	9	5	Technical specialities
Civil protection	1,0	Selective	9	5	Technical specialities

Courses for implementation European credit modules

12. Components of module « Advanced construction technologies for energy efficient buildings »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Fundamentals of industrial construction and sanitary equipment	3,0	Selective	10	5	Equipment for Food and Food Processing Industry

13. Components of module « Life cycle of the sustainable built environment »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Equipment and fundamentals of environment-friendly technologies with the application of CAD	7,0	Selective	9	5	Ecology and Environment Protection

Courses for implementation European credit modules

14. Components of module « Network analysis for local systems »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Systems theory in ecology	3,0	Normative	10	5	Ecology and Environment Protection

15. Components of module « Climate, architecture and energy saving»

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
New construction materials	3,0	Selective	11	6	Ecology and Environment Protection

Courses for implementation European credit modules

16. Components of module « The agencies of territorial and sustainable development governance »

Discipline	ECTS credits	Type of discipline	Semester	Course	Speciality
Technogenic and ecological safety governance	4,0	Normative	9	5	Ecology and Environment Protection



Choice of modules for implementation into courses run with involvement students and professors. On the web side of the department (<http://in-ter.info>) there is an information about the project and recommended European Modules. Also on the web-side you can find a form with the information concerns the study of opinion of students, professors, scientists and employers about necessity in modernization of training courses in compliance with European modules. The requirements of labor-market in specialists trained used European modules are also investigated.



**THANK YOU
FOR YOUR ATTENTION**

CEN-EAST















