



Greening of energy education.

Experience of Odessa National Polytechnic University

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Given that power engineering, including nuclear power, is one of the most potentially dangerous industry sectors for environment, the Institute for Energy and Computer-Integrated Management Systems (IECIMS) of Odessa National Polytechnic University (ONPU) pays special attention to ecology and environment protection issues in the training of future power engineers.



ONPU trains environmental specialists not with biological, but with technical background.





IECIMS, alongside with the training of students in such traditional energy sector areas as:

- *Thermal power plants;*
- *Nuclear power plants;*
- *Industrial power engineering;*
- *Automation of technological processes;*
- *Water and Fuel Technology at TPP and NPP,*

also trains students in the environmentally oriented specialties::

- *Applied ecology and balanced natural resources application;*
- *Environmental safety;*
- *Nonconventional power engineering*

Some of the power energy profile disciplines, studied by ecologists:

- Environmental safety of industrial enterprises (4th year), 36 hours
- Natural resources management in power enterprises (5th year)
- Fundamentals of technology and environmental safety at TPPs and NPPs (5th year), 36 hours
- Nuclear fuel and radioactive waste management (5th year), 36 hours



Educational program packages used in the training of ecologists

1. **Scilab.** Academic subjects: “Hydroecology and forecasting of water facilities”, “Modeling and prediction of environmental risks”. (*Development of mathematical models and executing calculations*).
2. **Solid Works 2006.** Academic subjects: “Environmental Safety of industrial enterprises”, “Modern methods of research”. (*Development of mathematical models and executing calculations*).
3. **EOL-PLUS.** Academic subjects: “Environmental inspection”, “Environmental standardization and certification”, “Environmental certification of territories and waters”. (*Development of mathematical models and executing calculations*).



Academic subjects learned by nuclear engineers that include ecological sections:

- Introduction to specialty (1st year), 36 hours (6 hours)
- Fundamentals of Information Technology and Software Engineering (1-2 year), 108 hours (12 hours)
- Fundamentals of Ecology (3rd year), 36 hours
- Protection against ionizing radiation (4th year), 42 hours (20 hours)
- Sources of energy and energy generation systems (4th year), 28 hours (8 hours)
- Safety and reliability of nuclear power plants (5th year), 36 hours (8 hours)
- Promising areas of power engineering (5th year), 18 hours (4 hours)
- NPP life cycle management and decommissioning (5th year), 36 hours (6 hours)
- NPP operation (5th year), 72 hours (10 hours)





Thank you for your
attention!

