

**Clean Production Technologies**  
**Lecturer: Prof. Jozef M. Pacyna**  
**Date of lecturing: 7 – 10 January, 2014**

**Summary**

The following subjects will be lectured:

1. Technologies to produce energy and heat. Production of energy from fossil fuels. Clean coal technologies. Current situation and future projections. How serious is the “gas supply” issue in a view of recent natural gas shortage in Europe.
2. Energy production and energy consumption as major drivers of environmental change. Emissions of various gases and particles from energy sources to the atmosphere. Releases of contaminants and nutrients to aquatic and terrestrial ecosystems.
3. Technologies for Carbon Capture and Storage: technological solutions and non-technological barriers. Economic aspects and social conflicts.
4. Energy production as a source of changes of ecosystem goods and services. Description of goods and services within various environmental compartments. The impact of energy production and use on the concentration levels of chemicals in various environmental compartments on global, European and local scale.
5. BAT and BEP concepts. Technological and non-technological solutions for environmental-friendly production of industrial goods.
6. Life cycle analysis: applications in energy and environmental studies.
7. Waste disposal management in the energy production sector. Waste-to-energy technologies.
8. Renewable energy sources as a way to improve the quality of the environment. Current use of renewables to meet the energy demands in Europe and worldwide and future projections.
9. Role of monitoring networks in implementation of environmental management strategies in the power production sector. General concept of monitoring at various scales. Examples of various monitoring systems.
10. Implementation of international agreements on pollution reduction from power production sector.

<b>Termin</b>	<b>Dzień tygodnia</b>	<b>Godzina</b>	<b>Miejsce</b>
<b>07.01.2014</b>	<b>Wtorek</b>	<b>9.15 – 12.10</b>	<b>LUWR</b>
<b>08.01.2014</b>	<b>Środa</b>	<b>9.15 – 12.10</b>	<b>LUWR</b>

<b>09.01.2014</b>	<b>Czwartek</b>	<b>9.15 – 12.10</b>	<b>LUWR</b>
<b>10.01.2014</b>	<b>Piątek</b>	<b>9.15 – 12.10</b>	<b>LUWR</b>