Selected courses in English in the academic year 2010/11

KUL institute/department:	Institute of Journalism and Social Communication /Faculty of Social Sciences
Course title:	**Nanotechnology in social communication**
Lecturer (name, surname):	Prof. Dr hab. Karol Klauza
Title/position:	Prof.
ECTS credits:	3
Course duration (1st , 2nd or both semesters):	1st
Number of hours per week:	1
Course type:	Tutorial
Level:	1st
Course description:	Nanotechnology (resp. nanomaterials and nanoprocessus) provides the potential for significant advances over the next 50 years. Applications will be broad, including; health care, medicine, security, electronics, social communications and computing. In the next 5 years - flat panel flexible displays using nanotechnology, high density data storage using nanomagnetic effects. In the 10 years using quantum computing and DNA computers. **Learning Outcomes** A student who has successfully completed this module/subject will be able to: - discuss the concept of nanotechnology, nanomaterials and nanoprocessus within society especially in UE legislation - describe top-down and bottom-up approaches to nanotechnology [Top-down' sc. making nanoscale structures; 'bottom-up', (molecular nanotechnology) sc. building organic and inorganic materials , often by self-assembly or self-organisation]

	(iii) describe possibilities of nanotechnologies in social comunication **Main topics** **Introduction to Nanotechnology** The nanoscale. What is nanotechnology? **Nanotechnology in social communication.** **Interdisciplinary problems** Consequences of the nanoscale for technology and society. **Technologies for the Nanoscale** Visualisation, manipulation and characterisation at the nanoscale Proximal probe technologies. Nanotechnologies, Public Knowledge and the Media Scientists and Policymakers Representations of Nanotechnologies Communication about Nanotechnologies in the Future Nanoethics. Legislation and nano-problems Risks with nanotechnologies and nanomaterials **4. Nanoscale Manufacturing** Nanomanipulation. Nanolithography in cyber environment **5. Nanoscale Materials and Structures** Nanocomposites. Quantum wells, wires, dots and nanoparticles **6. Applications** Applications in energy, informatics, medicine, etc.
Required reading list:	Milburn, C.:'*Nanotechnology in the age of post-human engineering: science fiction as science*', „Configurations", 10 , 261-295 [reprinted in: N.K. Hayles (ed.), *Nanoculture: Implications of the New Technoscience*, Bristol, UK: Intellect Books, 2004, pp. 109-130]. 1. *Nanosystems: Molecular Machinery, Manufacturing and Computation,* K E Drexler, Wiley (1992), ISBN 0471575186 2. O*ur Molecular Future: How Nanotechnology, Robotics, Genetics and Artificial Intelligence Will Transform the World,* Prometheus (2002), ISBN 1573929921

	3. Roco, Mihail C.; Bainbridge, William, eds., *Societal implications of nanoscience and nanotechnology* Dordrecht ; Boston : Kluwer Academic Publishers, 2001 **Web Resources** www.nanotechweb.org www.nano.gov www.nanotec.org.uk
Prerequisites:	-
Assessment method:	Lecture, discussions, multimedia materials
Contact person for further information (name, surname, e-mail, phone):	kklauza@wp.pl