Course title in English	**Nuclear power**
Course title in Polish	Energetyka jądrowa
Course code	
Type of course	Lecture
Level of course	PhD
Year of study	1-4
Semester/trimester	1/3/5/7
Number of hours/credits allocated	30/2
Name of lecturer	Bogdan Skwarzec
Objective of the course (expected learning outcomes and competences to be acquired)	*Knowledge*: 1. Knows and understands the basic concept related to nuclear energy 2. Knows the types of basic types of nuclear reactors used in power industry and knows what are the principal of their operation 3. Understand the concept of safety and radioactive contamination, nuclear waste, their transport and storage, processes of transmutation 4. Has knowledge about new solutions in nuclear energy *Skills*: 1. Recognizes and understands the basic concept of nuclear energy 2. Identifies types of nuclear reactors 3. Identifies the methods of nuclear fuel production 4. Knows how to define the advantage and disadvantages of nuclear energy 5. Knows the ways of producing electricity *Social competence*: 1. Understands the need for further education in the field of nuclear energy 2. Is innovative in educating the society about the ways of producing electricity 3. Determines the purposefulness of raising public awareness of the implementation of nuclear energy

	4. Recognizes the benefits for society from the use of nuclear energy
Prerequisites	Basis in nuclear chemistry
Course contents	Electricity and nuclear energy in the world; thermonuclear fusion as a source of energy; nuclear reactors, their construction and types; reactor processes in nuclear reactors; production of nuclear fuel; advantage and disadvantage of nuclear energy; reactor failures and the safety of a nuclear power plant; radioactive waste and methods of its disposal; prospects for the development of nuclear energy
Recommended reading	Skwarzec B., Radiochemistry of the environment and radiological protection (Radiochemia środowiska i ochrona radiologiczna), DJ s.c., Gdańsk, 2002 (in polish) Strzałkowski A., Introduction to nuclear physics (Wstęp do fizyki jądrowej), PWN, Warsaw 1979 (in polish) Sobkowski J i Jelińska-Kaźmierczuk M., Nuclear chemistry (Chemia jądrowa), Adamantan Publishing House , Warsaw 2006 (in polish) Celiński Z., Nuclear power (Energetyka jądrowa), PWN, Warsaw 1991 (in polish) Jezierski G., Nuclear energy (Energia jądrowa), WNT, Warsaw 2014 (in polish) Attix F. H., Introduction to radiological physics and radiation dosimetry, J. Willey&Sons, 1986
Teaching methods	Lectures with multimedia presentation
Assessment methods	Oral exam
Language of instruction	Polish