

COURSE TITLE: **RENEWABLE ENERGY RESOURCES**

Institute/Division: Institute of Process and Power Engineering / Division of Power Engineering

Erasmus subject code: 06.1

Number of contact hours: 30

Course duration: 1 semester

ECTS credits: 2

Course description: Current penetration of renewable energy technologies in the marketplace. The energy future and the role of renewable energy. Solar radiation. Power in the wind. Ocean waves. Power in the waves. Water flows and tides. River flows, hydropower and elevated water storage. The power in ocean thermal gradients. Geothermal flows and stored energy. Biological conversion and storage of energy. Photovoltaic conversion. Other energy.

Literature: Bent Sorensen, *Renewable energy*, Third edition, Elsevier Academic Press, 2004.

Course type: Lectures, laboratory

Assessment method: Test.

Prerequisites:

Primary target group: 2nd year Thermal Power Systems and Installations

Lecturer: Grądziel Sławomir, PhD

Contact person: Grądziel Sławomir, PhD, phone: +48 12 628 3553, e-mail: gradziel@mech.pk.edu.pl

Deadline for application: May 31

COURSE TITLE:	POWER BOILERS
Institute/Division:	Institute of Process and Power Engineering / Division of Power Engineering
Erasmus subject code:	06.1
Number of contact hours:	30
Course duration:	1 semester
ECTS credits:	4
Course description:	Fossil fuel boilers for electric power. Fossil fuel boilers for industry and small power. Wood and biomass installations. Pressurized fluidized-bed combustion. Boilers, superheaters and reheaters. Economizers and air heaters. Hot water PC boilers. Boilers with natural circulation. CFB steam boilers. Supercritical steam boilers.
Literature:	S.C.Stultz and J.B.Kitto, <i>Steam its generation and use</i> , Babcock and Wilcox a McDermott Company, Barberton, Ohio, USA, 1992.
Course type:	Lectures, classes
Assessment method:	Final test
Prerequisites:	
Primary target group:	2 nd year Thermal Power Systems and Installations
Lecturer:	Grądziel Sławomir, PhD
Contact person:	Grądziel Sławomir, PhD, phone: +48 12 628 3553, e-mail: gradziel@mech.pk.edu.pl
Deadline for application:	May 31

COURSE TITLE:	COMBUSTION
Institute/Division:	Institute of Process and Power Engineering / Division of Power Engineering
Erasmus subject code:	06.1
Number of contact hours:	30
Course duration:	1 semester
ECTS credits:	3
Course description:	. Combustion terminology. Stoichiometry and thermochemistry of reacting system. Sources of chemical energy. Burners and Combustion systems for pulverized coal. Coal gasification. Combustion of solid fuels, carbon and char. Combustion system components.
Literature:	Kalyan Annamalai, Ishwar K. Puri, <i>Combustion science and engineering</i> , CRC Press, 2005 Charles E. Baukal, Jr., Vladimir Y. Gershtein, Xianming Li, <i>Computational Fluid Dynamics in Industrial Combustion</i> , CRC Press, 2001
Course type:	Lectures
Assessment method:	Test
Prerequisites:	
Primary target group:	2 nd year Thermal Power Systems and Installations
Lecturer:	Grądział Sławomir, PhD
Contact person:	Grądział Sławomir, PhD, phone: +48 12 628 3653, e-mail: gradziel@mech.pk.edu.pl
Deadline for application:	May 31