Code	III.7.
Course Title (English)	Project I
Course Title (Polish)	Projekt I
Credits	4 ECTS

Language of instruction **English**

Compulsory for Profile: Computer Modelling and Simulation (CMS), Intelligent Energy (IE), Biotechnology for Environmental Protection (BI), Business and Technology (BT)

Type of studies BSc studies

Unit running the programme Institute of Mechanics and Machine Design Fundamentals

Institute of Production Engineering

Institute of Environmental Engineering

Independent Unit of the Heating, Ventilation and Air-conditioning

***Course coordinator** and academic teachers*

CMS: Dr Krzysztof Sokół PhD Eng., Dr Krzysztof Sokół PhD Eng.

BT: Prof. Robert Ulewicz, Prof. Jacek Selejdak, Prof. Robert Ulewicz, Prof. Jacek Selejdak, Prof. Piotr Pachura

BI: Dr Magdalena Zabochnicka – Świątek PhD, Dr Magdalena Zabochnicka – Świątek PhD

IE: Dr Michał Turski, Dr Michał Turski

Form of classes and number of hours

Semester	Lec.	Tut.	Lab.	Proj.	Sem.	Credit points
3	-	-	-	45	-	4

Learning outcomes

CMS: The objectives of this course are designed to instruct engineering students in the modelling of 3D parts and simulation of mechanisms of machines by means of Catia software. After completing this project students will gain knowledge in practical application of Catia modules (Part Design, Assembly, DMU Kinematics, Drafting and others).

BT: The objective of this course is to develop competence in understanding of the economic processes and methods.

BI:. The objective of this course is to develop competence in understanding of the biological processes within the contaminated environment.

IE: The objectives of this course are: knowledge about performing a project of building installations for heating and cooling purposes, knowledge about construction and exploitation of the HVAC installation and devices.

Prerequisites

Basic knowledge in creating a technical drawing and mathematics.

Basic knowledge in the range of mathematics, physics, fluid mechanics, technical thermodynamics.

Course description

LECTURE
Not applicable

TUTORIALS
Not applicable

LABORATORY
Not applicable

PROJECT
CMS:
Introduction to Catia **–** Application of computer software in engineering problems
Introduction to Part Design **-** User Interface description, Sample of modelling of simple 3D parts by means of basic tools
Introduction to Drafting – User Interface description, Sample technical drawing
Introduction to Assembly **-** User Interface description, Assembly constraints, Sample assembly of a model
Introduction to DMU Kinematics – User Interface description, Kinematics constrains and sample creation of the mechanism
Other modules will be introduced if needed (depends on project and students requirements).
BT:
The details of the course are individually discussed with the tutor and strongly depend on the particular project. Typically the course is the introduction to basic methods and concepts of economics/management from the practical point of view.
BI:
The details of the course are individually discussed with the tutor and strongly depend on the particular project. Typically the course contains: Contamination, Enhanced Natural Attenuation (ENA) processes, Degradation in water reservoirs, Wastewater treatment, Laboratory studies on sorption of inorganic contaminants by algae and mineral sorbents. When the project is finished, the work should be presented in front of the audience at the final meeting.
IE:
The scope and theme of the project determined individually for the chosen building.

SEMINAR
Not applicable

Form of assessment

Public presentation of the project.

Basic reference materials

CMS:

1. Introduction to CATIA V5 Release 19 Author Kirstie Plantenberg
2. CATIA V5 Workbook Release 19 Author Richard Cozzens
3. http://www.catia.com.pl/rama_tutoriale.html
4. Software help

Other reference materials

For Polish-speaking students:

1. CATIA. Podstawy modelowania i zapisu konstrukcji
   Autorzy: Wojciech Skarka, Andrzej MazurekData wydania: 02/2005
2. Modelowanie bryłowe w systemie CATIA. Przykłady i ćwiczenia
   Autor: Marek Wyleżoł Data wydania: 07/2002
3. CATIA v5. Modelowanie i analiza układów kinematycznych
   Autor: Marek Wyleżoł Data wydania: 01/2007

BT:

Literature delivered by the tutor.

BI:

1. Alloway & Ayres: "Chemical Principles of Environmental Pollution", Blackie Academic & Professional, 1997.
2. Scientific articles
3. Zastosowania metod statystycznych w badaniach naukowych I, StatSoft Polska, Kraków 2000.

IE:

1. Sugarman S. C.: "HVAC fundamentals". The Fairmont Press, Inc., 2004.
2. Gupton W.: "HVAC controls: operation & maintenance". Marcel Dekker, 2001.
3. Bearg D.W.: "Indoor air quality and HVAC systems". CRC Press, 1993.
4. Monger S.: "Testing and balancing HVAC air and water systems". The Fairmont Press, Inc., 2000 .
5. Levenhagen J. I.: "HVAC control system design diagrams". McGraw-Hill Professional, 1998.

For Polish-speaking students:

1. Koczyk H.: Ogrzewnictwo praktyczne. Wydanie II, Wydawnictwo Systherm Serwis, Poznań, 2009.
2. Nantka. M.: Ogrzewnictwo i Ciepłownictwo. Tom I, Wydanie II, Wydawnictwo Politechniki Śląskiej, Gliwice, 2010.
3. Nantka. M.: Ogrzewnictwo i Ciepłownictwo. Tom II, Wydanie II, Wydawnictwo Politechniki Śląskiej, Gliwice, 2010.
4. Pełech A.: Wentylacja i Klimatyzacja. Wydawnictwa Politechniki Wrocławskiej, Wydanie II, 2009.
5. Recknagel H., Sprenger R. i inni: Ogrzewnictwo, Klimatyzacja, Ciepła woda, Chłodnictwo. Wydawnictwo OMNI SCALA – TECNOCLIMA, 2008 .

e-mail of the course coordinator and academic teachers	**CMS**: sokol@imipkm.pcz.pl **BT:** ulewicz@zim.pcz.pl **BI:** mzabochnicka@is.pcz.czest.pl **IE:** mturski@fluid.is.pcz.pl
Average student workload (teaching hours + individ.)	3 hours of work per week
Remarks:	
Updated on: 2.02.2015	