COURSES FOR EXCHANGE STUDENTS

1. **Course title**

Mechanism and Machine Theory

2. **Course code**	3. **Teaching methods** Lectures, exercises Traditional form of lectures will be supported by video presentations of the most essentials and crucial steps to understand: CAD/CAE possibilities in aim to create virtual models, check and validate their level of innovation. The main parts of the course are prepared in electronics form and will be delivered to the students systematically during the course.
4. **Type of course** Optional	5. **Year of study** - III year/ VI semester
6. **Number of credits**	7. **Level of course** basic
8. **Numbers of hours per week 2 (lect.), 2 (exercises)**	9. **Numbers of hours per semester** Lectures 30h, Exercises 60h

10. **Language of instruction** English

11. **Name of lecturer** dr inż. Marek Macko

12. **Prerequisites** skills in use of basic geometrical rules and basis on machine building

13. **Goal of the course**

- determination degrees of freedom for a link and kinematic pair,
- description of kinematic pair and determine motion,
- distinguish and categorise different type of links,
- know inversions of different kinematic chains,
- understand utility of various mechanisms of four bar kinematic chain,
- make kinematic design of a mechanism,
- know special purpose mechanisms,
- know terminology of cams, and
- know classification of followers and cams.

14. **Course contents**

Introduction into simple mechanisms
Kinematics of Machines
Kinematic Link or an Element
Classification of Links
Degree of Freedom
Kinematic Pairs
Different Pairs
Types of Lower Pair
Higher Pair
Wrapping Pair
Kinematic Chains
Inversions of Kinematic Chain

Machine
Other Mechanisms
Pantograph
Straight Line Motion Mechanisms
Automobile Steering Gear
Hooks Joint or Universal Coupling
Cams
Definition
Classification of Cams
Classification of Followers
Terminology of Cam and Follower
Mechanical Advantage

15. **Assessment methods**

Exam paper combined with a presentation and project prepared in SolidWorks application

16.**Recommended reading**

1. Felis J., Jaworowski H., Cieślik J.: Teoria Maszyn i Mechanizmów. Cześć I. Analiza Mechanizmów. AGH Uczelniane Wydawnictwa Naukowo-Dydaktyczne. Kraków 2008.
2. Felis J., Jaworowski H.: Teoria Maszyn i Mechanizmów. Cześć II. Przykłady i zadania. AGH Uczelniane Wydawnictwa Naukowo-Dydaktyczne. Kraków 2007.
3. Kędzior, Knapczyk, Morecki. Teoria mechanizmów i maszyn, WNT, W-wa 2001.
4. Morecki A., Oderfeld J.: Teoria maszyn i mechanizmów. PWN, Warszawa 1987.
5. Olędzki A.: Podstawy teorii maszyn i mechanizmów. WNT, Warszawa 1987.
6. Parszewski Z.: Teoria maszyn i mechanizmów. WNT, Warszawa 1978.
7. Praca zbiorowa: Mały poradnik mechanika. WNT, Warszawa 1994.
8. Miller S.; Teoria maszyn i mechanizmów – analiza układów kinematycznych; Oficyna Wydawnicza Politechniki Wrocławskiej; Wrocław 1996
9. SolidWorks. Opis programu – moduły motion/simulation
10. http://www.ignou.ac.in/upload/Unit-1.pdf