

# Design of assembly - course description

General information	
Course name	Design of assembly
Course ID	06.9-WM0-ZiIP-ZPU-ANG-D-21_20
Faculty	<a href="#">Faculty of Mechanical Engineering</a>
Field of study	Management and Production Engineering
Education profile	academic
Level of studies	Second-cycle studies leading to MSc degree
Beginning semester	winter term 2023/2024

Course information	
Semester	3
ECTS credits to win	3
Course type	obligatory
Teaching language	english
Author of syllabus	<ul style="list-style-type: none"><li>dr hab. inż. Michał Sęsiadek, prof. UZ</li></ul>

Classes forms					
The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Project	30	2	-	-	Credit with grade
Lecture	15	1	-	-	Credit with grade

## Aim of the course

Acquiring the knowledge and skills specific for the Design for Assembly.

## Prerequisites

Basic knowledge of production processes.

## Scope

Types of assembly, separable and inseparable connections. Types of interchangeability of machine parts. The specificity of design for assembly. Producibility of a structure. General principles for design for assembly. Students, using CAD systems, design a technological process of assembly of a product taking into account: costs, standardization, unification. Documentation of assembly processes.

## Teaching methods

Lecture: Conventional lecture

Project: working on project

## Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
The student has knowledge of the life cycle of devices, objects and technical systems, related to Management and Production Engineering	<ul style="list-style-type: none"><li><a href="#">K_W17</a></li></ul>	<ul style="list-style-type: none"><li>a pass - oral, descriptive, test and other</li><li>a preparation of a project</li></ul>	<ul style="list-style-type: none"><li>Lecture</li><li>Project</li></ul>
The student is able to propose solutions aimed at improving and/or modifying existing technical processes and is also able to estimate the usefulness of new methods and techniques, related to quality management and the improvement of processes, by selecting and using the correct methods and instruments.	<ul style="list-style-type: none"><li><a href="#">K_U29</a></li></ul>	<ul style="list-style-type: none"><li>a pass - oral, descriptive, test and other</li><li>a preparation of a project</li></ul>	<ul style="list-style-type: none"><li>Lecture</li><li>Project</li></ul>
The student has detailed knowledge of selected issues of Mechanical Engineering, as broadly understood and associated with Production Engineering and computer aided techniques (CAD / CAM, Cax).	<ul style="list-style-type: none"><li><a href="#">K_W06</a></li></ul>	<ul style="list-style-type: none"><li>a pass - oral, descriptive, test and other</li><li>a preparation of a project</li></ul>	<ul style="list-style-type: none"><li>Lecture</li><li>Project</li></ul>
The student is able to think and act both creatively and entrepreneurially.	<ul style="list-style-type: none"><li><a href="#">K_K06</a></li></ul>	<ul style="list-style-type: none"><li>an ongoing monitoring during classes</li></ul>	<ul style="list-style-type: none"><li>Project</li></ul>

Outcome description	Outcome symbols	Methods of verification	The class form
The student is able to prepare, document in writing and elaborate issues in technical sciences and in the scientific disciplines relevant to Management and Production Engineering, viz., production engineering, the engineering of materials, the building and operating of machines, mechanics, automation and robotics, management, presenting the results of his/her research in writing, in Polish and in English.	<ul style="list-style-type: none"> <li>• <a href="#">K_U05</a></li> </ul>	<ul style="list-style-type: none"> <li>• a preparation of a project</li> </ul>	<ul style="list-style-type: none"> <li>• Project</li> </ul>
The student understands the importance of the non-technical aspects and effects of engineering, including their impact on the environment; the student is aware of the responsibilities resulting from decisions taken in this regard.	<ul style="list-style-type: none"> <li>• <a href="#">K_K02</a></li> </ul>	<ul style="list-style-type: none"> <li>• an ongoing monitoring during classes</li> </ul>	<ul style="list-style-type: none"> <li>• Project</li> </ul>
The student is able to plan experiments in mechanical engineering and is able to work out the results of an experiment, draw conclusions, formulating opinions in the process and sufficiently justifying them.	<ul style="list-style-type: none"> <li>• <a href="#">K_U02</a></li> </ul>	<ul style="list-style-type: none"> <li>• a pass - oral, descriptive, test and other</li> <li>• a preparation of a project</li> </ul>	<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Project</li> </ul>

## Assignment conditions

The students' progress in acquiring the knowledge, skills and competencies is regularly monitored through systematic evaluation of project tasks performed in groups.

## Recommended reading

1. *Booker J.D., Raines M., Swift K.G., Designing Capable and Reliable Products, Butterworth-Heinemann, 2001,*
2. *Boothroyd G., Dewhurst P., Knight W., Product Design for Manufacture and Assembly, Marcel Dekker, 1994,*
3. *Whitney D.E., Mechanical Assemblies: Their Design, Manufacture, and Role in Product Development, Oxford University Press, 2004,*
4. ANDREASEN, Mogens Myrup; KÄHLER, Steen; LUND, Thomas. Design for assembly. IFS, 1988.
5. REDFORD, A.; CHAL, J. Design for Assembly: Principles and Practice, 1994.

## Further reading

1. *Feld M: Podstawy projektowania procesów technologicznych typowych części maszyn. WNT – Warszawa 2000,*
2. *Koch T., Systemy zrobotyzowanego montażu, Wydawnictwo Politechniki Wrocławskiej, Wrocław 2006,*
3. *Puff T., Sołtys W., Podstawy technologii montażu maszyn i urządzeń, WNT, Warszawa 1980,*
4. *Richter E., Schilling W., Weis M., Montaż w budowie maszyn, WNT, Warszawa 1980,*
5. *Sąsiadek, M. "Planowanie i wybór sekwencji montażu we współbieżnym projektowaniu elementów i zespołów maszyn." Rozprawa doktorska, Zielona Góra (2009),*
6. *Żurek J., Ciszak O., Modelowanie oraz symulacja kolejności montażu części i zespołów maszyn za pomocą teorii grafów, Wydawnictwo Politechniki Poznańskiej, Poznań 1999,*

## Notes

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Modified by dr inż. Tomasz Belica (last modification: 12-04-2023 23:05)

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