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| **Assembly technology** |

**Code: MFSZT31G03-EN**

**ECTS Credit Points: 3**

**Evaluation: mid-semester grade (AW5)**

Year, Semester: 3rd year/1st semester

Number of teaching hours/week:

Lecture: **2**

Practice: **1**

**Prerequisites: Manufacturing process II. MFGYT32G04-EN**

**Topics**:

The main objective of the subject is that students learn about the correct planning of machine construction assembly. They are expected to be able to plan a fast and correct assembly plan for different machine elements. The students learn about the definition of parallel assembly. The dimensional chain and tolerance techniques are also part of the curriculum. The practices provide students with examples of the assembly processes of the most important machine elements which are used in the daily routine of a factory.

**Literature:**

1. **Bruno L.: Manufacturing Assembly Handbook, London, 1989, ISBN 0-408-03561-7**
2. **Geoffrey B.: Product Design for Manufacture and Assembly, Third Edition, United States, ISBN**1420089277
3. **John A. Schely:** Intorduction to manufacturing processes, London, 1977, p. 392, ISBN 0-07055274-6
4. **Molloy O., Tilley S.,Warman E. A.:** Design for Manufacturing and Assembly, Springer, 1998, ISBN 978-1-4613-7650-2
5. **Svetan R.:** Precision Assembly Technologies for Mini and Micro Products, Springer, 2016, ISBN 978-0387312767
6. **Sukhan L., Raúl S.,Byung-Wook C.:** Frontiers of Assembly and Manufacturing, Springer, 2010, ISBN 978-3-642-14115-7

**Schedule**

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| **1st week:**  **Lecture:** The place and ponderosity of assembly in a manufacturing process.  **Practice:** The basic theorem of an assembly.  **The impression of Homework I and II.** | **2nd week:**  **Lecture:** Characteristics of assembly work. Basic definitions. Operations of an assembly process.  **Practice:** Basics of tolerance techniques. Fits. |
| **3rd week:**  **Lecture:** Sum of systematic and incidental errors. Examinations of dimension chains.  **Practice:** Solving tasks on tolerance techniques. | **4th week:**  **Lecture:** The method of total and particular interchangeability.  **Practice:** The method of selecting fits, subsequent fits and adjusting regulation. |
| **5th week:**  **Lecture:** Cutting processes in assembly.  **Practice:** Solving tasks on dimension chains. | **6th week:**  **Lecture:** Designing assembly technology.  **Practice:** Determination of technological conditions of assembly. Assembly corrected construction. |
| **7th week:**  **Lecture:** Designing assembly processes.  **Practice:** Solving tasks on assembly technology. | **8th week:**  **Lecture: A**ssembly operations.  **Practice:** Designing assembly operations and manufacturing steps. |
| **9th week:**  **Lecture:** An assembly tree. The types of assembly trees.  **Practice: Test - Written examination.** | **10th week:**  **Lecture:** Balancing. Assembly of machine elements.  **Practice: A**ssembly of threaded joints. Assembly of friend joints. |
| **11th week:**  **Lecture: A**ssembly of a bolt joint. Assembly of a key joint.  **Practice: A**ssembly of a riveted joint. | **12th week:**  **Lecture: A**ssembly of tooth gears.  **Practice: A**ssembly of bevel gearings. |
| **13th week:**  **Lecture:** Assembly of a rolling bearing.  **Practice:** Setting of radial and axial rolling bearings. | **14th week:**  **Lecture:** Assembly automation. Quality assurance on assembly.  **Practice: Submission of homework I and II.** |
| **15th week: Pre-exam.** |  |

**Requirements**

**A, for a signature:** Students have to prepare Homework I and II. “Homework I” is on designing assembly technology. “Homework II” is on designing tolerance techniques.

**B, for a grade: S**tudents have to pass the exam. The exam questions will be given in advance.