

## **Tárgyleírás**

**Tárgy neve: Manufacturing Engineering for Programmers**

**Tárgyfelelős neve: Dr. Andó Mátyás**

**Tárgyfelelős tudományos fokozata: PhD**

**Tárgyfelelős MAB szerinti akkreditációs státusza: AT**

**Az oktatás célja angolul / Aim of the subject:**

1. Students come into contact directly with productions machines and use them.
2. Have an insight into the manufacturing process from design to finished product.
3. See exactly where the data comes from and why we collect it.

### **Knowledge**

- In order to be able to perform their work in an innovative way and do research (when necessary) in their own IT specialisation, they have comprehensive and up-to-date knowledge of general mathematical and computing principles, rules and relationships moreover engineering field as well.
- They have comprehensive and up-to-date knowledge of the principles, methods, and procedures for designing, developing, operating, and controlling IT and Manufacturing processes
- They are aware of methods and tools for competent and effective networking both in writing and speaking.
- They know the principles and problems of corporate social responsibility related to IT systems.

### **Abilities:**

- They are able to formalize complex IT tasks, to identify and study their theoretical and practical background and then to solve them.
- They are able to perform design, development, operation, and management tasks when operating complex software systems, database management systems, corporate information systems, decision support systems, and expert systems.
- They are able to initiate collaboration and work in a team as well as on projects with IT and engineering professionals.
- They are able to plan and execute quality-management subtasks related to their IT specialisation.

- They are able to professionally use scientific and technical information sources to obtain knowledge necessary for solving a problem, and to critically interpret and evaluate it.

#### **Attitude:**

- They are committed to critical feedback and evaluation based on self-examination.
- They are committed to lifelong learning, and are open to acquiring new IT competencies.
- They accept and make their co-workers apply the ethical principles of work and organizational culture as well as those of IT scientific research.

#### **Autonomy, responsibility:**

- They take responsibility for their professional decisions made in their IT-related activities.
- They undertake to meet deadlines and to have deadlines met.
- Regarding mission critical IT systems, they can be entrusted with developing and operational responsibilities that are in accordance with their professional competencies.
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#### **Az oktatás tartalma angolul / Major topics:**

Introduction of manufacturing technologies, history and industrial revolutions  
 Industrial materials (metals, polymers, ceramics and composites)  
 Industrial measurements (caliper, micrometer, dial indicator, block gauge)  
 Machine elements and their connections, tolerances  
 Sawing, drilling, turning  
 Milling, grinding, slotting  
 Process Planning, Route Sheet, Operation Sheet, Route Sequence details, CAPP  
 Welding technologies  
 Quality aspect of welding (standards)  
 CNC Machine-tool Structures and measurements  
 Coordinate measuring machine and technologies  
 Abrasive water jet machining, polymer forming  
 Printed circuit board manufacturing, jointing technologies

#### **A számonkérés és értékelés rendszere angolul / Requirements and evaluation:**

1. Attendance on lectures and practices (maximum 3 absences are allowed).
2. Submit midterm tests. Test worth 50 points.
3. Project work: 50 points.

To accomplish the semester you need to acquire at least 50 points (50%).

Unsuccessful or unwritten midterm test can be corrected once of the semester. Project work cannot resubmit.

The final grade is determined based on the following method: sum of midterm test and project work.

The grades are determined with the following scale:

87 – 100 %	excellent (5), is the best grade
75 – 86 %	good (4)
63 – 74 %	satisfactory (3)
50 – 62 %	pass (2), is the lowest passing grade
0 – 49 %	fail (1)

**Irodalom / Literature:**

Recommended literature:

**Kalpakjian, S. – Schmid, S. 2014. Manufacturing Engineering and Technology, Pearson, Singapore 2014**

**Grote and Antonsson Springer Handbook of Mechanical Engineering, Springer 2009**

**Schaeffler Technical Pocket GuideSchaeffler Technologies AG & Co. K, 2014**