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|--|---|--------------------------|--|------------------|-----|
| 1. Subject name  | Construction of vehicle manufacturing systems II.                             |                          |  |                  |     |
| 2. Subject name in Hungarian   | Járműgyártás és gyártórendszer tervezés II.                                   |                          |  |                  |     |
| 3. Code  | BMEKOGGM651   | 4. Evaluation type       | mid-term grade                                     | 5. Credits       | 5   |
| 6. Weekly contact hours  | 2 (10) Lecture  | 0 (0) Practice           | 2 (11) Lab   |                  |     |
| 7. Curriculum  | Vehicle Engineering MSc (J)   | 8. Role                  | Specialization (sp) at Vehicle Engineering MSc (J) |                  |     |
| 9. Working hours for fulfilling the requirements of the subject  |   |                          |  |                  | 150 |
| Contact hours  | 56  | Preparation for seminars | 18   | Homework         | 30  |
| Reading written materials  | 38  | Midterm preparation      | 8  | Exam preparation | 0   |
| 10. Department   | Department of Automotive Technologies   |                          |  |                  |     |
| 11. Responsible lecturer   | Dr. Pál Zoltán  |                          |  |                  |     |
| 12. Lecturers  | Dr. Takács János, Dr. Göndöcs Balázs, Dr. Szmejkál Attila, Dr. Weltsch Zoltán |                          |  |                  |     |
| 13. Prerequisites  |   |                          |  |                  |     |
| 14. Description of lectures  |   |                          |  |                  |     |
| <p>Survey of materials of cutting tools and the direction of development. Planning of manufacturing system and system elements for vehicle part-production. In this topic are the followings: planning methods of cutting tools (geometrical planning: chip-space planning, chip disposal planning, cooling solution planning, minimal-greasing), tool production methods: slotmilling, backing off turning, backing off grinding, spark manufacturing. Special tools for hard manufacturing of hybrid materials. Defects: deformations, flash appearance, wearing measurement, renovation of edges, tool sharpening. Tool management systems and economical analyses.</p> <p>Stucture of devices and planning method. Orientation, grip, driving, function, and manufacturing accuracy. manufacturing and renovation of devices.</p> <p>Technological operations, choosing method of machines, machine systems, planning of operation and centralisation of operation and cost analysation.</p> <p>Tooling of machines and devices.</p> <p>Factory planning: method of technical development, planning methods of vehicle production and repair workshops and workplaces on base of project management and requirements of industry - 0. In this topic are the followings: planning of casting-, cutting-, forming-, assembly-, cleaning-, painting-, and repairing workshops and workplaces. New requirements and points of view for building of the future factory.</p> |   |                          |  |                  |     |
| 15. Description of practices   |   |                          |  |                  |     |
| 16. Description of labortory practices   |   |                          |  |                  |     |
| Studying operating vehicle manufacturing systems. Calibration of tools.  |   |                          |  |                  |     |
| 17. Learning outcomes  |   |                          |  |                  |     |
| A. Knowledge   |   |                          |  |                  |     |
| <ul style="list-style-type: none"><li>• knows the cutting tools and tool systems</li><li>• knows the tool planning methods</li><li>• knows the tool production methods</li><li>• knows the new tool materials, use fields, advantages, disadvantages</li><li>• knows the planning methods of devices</li><li>• knows the factory of vehicle production and the workplaces in the factories</li><li>• knows the new points of view and planning methods of industry - 0</li><li>• knows the new developments trends and the new requirements</li></ul>  |   |                          |  |                  |     |
| B. Skills  |   |                          |  |                  |     |
| <ul style="list-style-type: none"><li>• the students can choose the correct engineering method with engineer creativity and can plan cutting tool, device,</li></ul>   |   |                          |  |                  |     |

new workshop, and workplace

C. Attitudes

- the student wants to learn the knowledge of subject, he cooperate with the lecturer
- in the preparing of exercise, she/he is open to use the newest results of information technology in her/his study and open for use of the new result of industry - 0, and use the new literature in her/his study

D. Autonomy and Responsibility

- the student feels responsibility for use of the knowledge in quality
- she/he uses the knowledge with responsibility and regularly develop his study

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**18. Requirements, way to determine a grade (obtain a signature)**

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The students during of semester get homeworks of every part-topic: tool planning, technology planning, device planning, workshop and workplace planning. During the semester the students write one midterm exam. The requirement of the subject: successful midterm exam and the giving of successful home-works for deadline. The final grade is the average of midterm test (50%) and home-works (50%) results.

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**19. Opportunity for repeat/retake and delayed completion**

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The midterm exam can be substituted once, the supplementation of one planning work is possible during the supplementation week.

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**20. Learning materials**

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E-books and materials provided by the Department.

Serope Kalpakjian: Manufacturing Manufacturing Engineering and Technology (2013)

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| <b>Effective date</b> | 10 October 2019 | <b>This Subject Datasheet is valid for</b> | Inactive courses |
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