SUBJECT DATA SHEET AND REQUIREMENTS

last modified: 5th December 2013

ADVANCED MANUFACTURING

KÜLÖNLEGES MEGMUNKÁLÁSOK

1	Code	Semester Nr.	Contact hours/week	Requirements	Credit	Language
	BMEGEGTMW01	**spring**	**1+0+3**	**p**	**5**	**English**

2. Subject's responsible:

Name:	Title:	Affiliation (Department):
Dr. Márton Takács	Associate professor	Dept. of Manufacturing Sciences and Engineering

3. Lecturer:

Name:	Title:	Affiliation (Department):
Dr. Márton Takács	Associate professor	Dept. of Manufacturing Sciences and Engineering
Balázs Zsolt Farkas	Assistant lecturer	Dept. of Manufacturing Sciences and Engineering
Dr. Sándor Markos	Assistant professor	Dept. of Manufacturing Sciences and Engineering
Dr. Bálint Laczik	Assistant professor	Dept. of Manufacturing Sciences and Engineering
Dr. József Váncza	Associate professor	Dept. of Manufacturing Sciences and Engineering

4. Thematic background of the subject:
Manufacturing technology, Physics

5. Compulsory / suggested prerequisites:

- Compulsory:-
- Suggested: Machine Design and Production Technology, BMEGEGEMW01
  Laser Physics, BMETE12MX00

6. Main aims and objectives, learning outcomes of the subject:

Advanced Manufacturing aims the study of technologies to improve products and/or processes, with the relevant technology being described as “advanced,” “innovative,” or “cutting edge.” Both theoretical and practical knowledge are presented. The students will gain a broad appreciation of materials, processes and techniques used in advanced manufacture.

7. Method of education:

- lecture: 1h/w,
- laboratory (or visiting of manufacturing factory): 3h/w

8. Detailed thematic description of the subject (by topic, min. 800 character):

1. Introduction to Advanced Manufacturing. Visiting the manufacturing laboratory of the Department.

2. Conventional machining operations. Fundamentals of machining operations. Mechanics of metal cutting. Machinability. Chip control. Fundamentals of advanced manufacturing (non-conventional machining).

3. Reverse engineering. Rapid Prototyping.

4. Mold design and manufacturing.

5. Production Planning - Material Requirements Planning.

6. Production Planning - Advanced models and algorithms.

7. Test Nr. 1. Consultation on semester essay.

8. Electro Discharge Machining EDM), processes and application. Micro EDM machining

9. Laser Beam Machining. Laser marking.

10. Rapid Prototyping.

11. NC tool path planning by CAM system.

12. Hard Cutting.

13. Test Nr. 2. Consultation on semester essay.

14. Gear production.

9. Requirements and grading
a) in term-period:

- Pass of 2 tests, acceptable performance min. 41% each
- Laboratory attendance, min. 80%
- Preparation of essay: literature survey, design work or study about a manufacturing problem
- Mark calculated from the results of both tests (33%-33%), and rating of semester essay (33%).

b) in examination period: -

c) Disciplinary Measures Against the Application of Unauthorized Means at Mid-Terms, Term-End Exams and Homework

Supplement to 1/2013. (I. 30.) Dean's Order (Codicil): The following students are subject to disciplinary measures.

(a) Those students who apply unauthorized means (book, lecture notes, etc.), different from those listed in the course requirements and/or adopted by the lecturer in charge of the course assessment, in the written mid-term exams taken, and/or invite/accept any assistance of fellow students, with the exception of borrowing authorized means,
will be disqualified from taking further mid-term exams in the very semester as a consequence of their action. Further to this, all of their results gained in the very semester will be void, can get no term-end signatures, and will have no access to Late Submission option. Final term-end results in courses with practical mark will automatically become Fail (1), the ones with exam requirements will be labelled Refused Admission to Exams.

(b) Those students whose homework verifiably proves to be of foreign extraction, or alternatively, evident results or work of a third party, are referred to as their own, will be disqualified from taking further assessment sessions in the very semester as a consequence of their action. Further to this, all of their results gained in the very semester will be void, can get no term-end signatures, and will have no access to Late Submission options. Final term-end results in courses with practical mark will automatically become Fail (1), ones with exam requirements will be labelled Refused Admission to Exams.

(c) Those students who apply unauthorized means (books, lecture notes, etc.), different from those listed in the course requirements and/or adopted by the lecturer in charge of the course assessment, in the written term-end exams taken, and/or invite/accept any assistance of fellow students, with the exception of borrowing authorized means, will immediately be disqualified from taking the term-end exam any further as a consequence of their action, and will be inhibited with an automatic Fail (1) in the exam. No further options to sit for the same exam can be accessed in the very same exam period.

(d) Those students who alter, or make an attempt to alter the already corrected, evaluated, and distributed test or exercise/problem,
i.) as a consequence of their action, will be disqualified from further assessments in the respective semester. Further to this, all of their results gained in the very semester will be void, can get no term-end signatures, and will have no access to Late Submission options. Final term-end results in courses with practical mark will automatically become Fail (1), the ones with exam requirements will be labelled Refused Admission to Exams;
ii.) and will immediately be inhibited with an automatic Fail (1) in the exam. No further options to sit for the same exam can be accessed in the very same exam period.

10. Retake and repeat

- Test: According to the Study and Examination Regulations
- Laboratory: no possible

11. Consulting opportunities:

Consultation hours: by email appointments

12. Reference literature (compulsory, recommended):

- George Schneider: Cutting tool application, Prentice Hall Inc.: http://www.prenthall.com/
- Kalpakjian, Schmid: Manufacturing Engineering and Technology, Prentice-Hall Inc.Publ. 2001, ISBN 0-201-36131-0
- Manufacturing, B. Benhabib, Marcel Dekker Inc., 2003, ISBN 0-8247-4273-7
- http://www.manuf.bme.hu/targyak/BMEGEGTMW01

13. Home study required to pass the subject:

Contact hours	64	h/semester
Home study for the courses	14	h/semester
Home study for the mid-semester checks	48	h/check
Preparation of mid-semester homework	24	h/homework

Home study of the allotted written notes	0	h/semester
Home study for the exam	0	h/semester
Totally:	**150**	**h/semester**

14. The data sheet and the requirements are prepared by:

Name:	Title:	Affiliation (Department):
Dr. Márton Takács	Associate professor	Dept. of Manufacturing Sciences and Engineering
Balázs Zsolt Farkas	Assistant lecturer	Dept. of Manufacturing Sciences and Engineering