



SUBJECT DATA SHEET AND REQUIREMENTS

last modified: 18th May 2016

CUTTING THEORY

FORGÁCSOLÁSELMÉLET

1	Code	Semester nr. or fall/spring	Contact hours/week (lect.+semin.+lab.)	Requirements p / e / s	Credit	Language
	BMEGEGT8564	fall	2+0+0	e	3	English

2. Subject's responsible:

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

3. Lecturer:

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

4. Thematic background of the subject:

Advanced knowledge on chip removal processes. Basic knowledge on manufacturing technology and materials science.

5. Compulsory / suggested prerequisites:

Completion of the following (or similar) courses are strongly recommended:

- Manufacturing
- Chip removal processes

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

Students will be

Main aim of this course is the detailed explanation of chip removal processes carried out by geometrically defined and undefined tools. Conventional processes will be summarized. Energetical, physical, mechanical and tribological effects of chip removal will be discussed in detail. Machinability of different materials will be presented. The course will focus on special circumstances of chip removal at ultra precision cutting, hard cutting, and micro machining, too. Students will be familiar with the major theories and main relationships of chip removal. They can carry out finite element simulation regarding cutting processes.

7. Method of education:

Lecture and/or consultation 2 h/w

8. Detailed thematic description of the subject:

Week	Lecture
1.	Summary of the conventional chip removal processes (turning, milling, drilling, broaching, sawing) I.
2.	Summary of the conventional chip removal processes (turning, milling, drilling, broaching, sawing) II.
3.	Summary of chip removal processes carried out by geometrical undefined tool
4.	Mathematical models of chip removal processes I.
5.	Mathematical models of chip removal processes II.
6.	Tool materials and tool degradation
7.	Chip removal at ultra precision machining
8.	Chip removal at micro machining
9.	Chip removal at hard cutting
10.	Regenerative effect and Seeback effect at hard cutting
11.	Finite element modelling of chip removal processes I.
12.	Finite element modelling of chip removal processes II.
13.	Machinability of different materials, considering the requirements of modern automobile industry.
14.	Summary

9. Requirements and grading

a) in term-period

Preparation of semester homework.

b) in examination period

Oral exam.

c) Grading

According to the homework and result of the exam.

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

The following students are subject to disciplinary measures.

1. Those students who apply unauthorized means (book, lecture notes, infocommunication means, tools for storing and forwarding electronic information, etc.), different from those listed in the course requirements or adopted by the lecturer in charge of the course assessment, in the written *mid-term exams* taken, or invite or 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.
2. 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.
3. Those students who apply unauthorized means (books, lecture notes, infocommunication means, tools for storing and forwarding electronic information, etc.), different from those listed in the course requirements or adopted by the lecturer in charge of the course assessment, in the written *term-end exams* taken, or invite or 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 respective exam period.

4. 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), 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

N.A.

11. Consulting opportunities:

1 occasion/week upon appointment by e-mail

12. Reference literature (recommended):

13. Home study required to pass the subject:

Contact hours	28	h/semester
Home study for the courses	14	h/semester
Home study for the exam	48	h/semester
Total:	90	h/semester

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

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