SUBJECT DATA SHEET AND REQUIREMENTS

last modified: 19th May 2016

PROCESS SUPERVISION AND DIAGNOSTICS

FOLYAMAT FELÜGYELET ÉS DIAGNOSZTIKA

1	Code	Semester nr. or fall/spring	Contact hours/week (lect.+semin.+lab.)	Requirements p / e / s	Credit	Language
	BMEGEGT8563	**spring**	**2+0+0**	**e**	**3**	**English**

2. Subject's responsible:

Name:	Title:	Affiliation (Department):
Dr. László Monostori	Professor	Department of Manufacturing Science and Engineering
Dr. Tibor Szalay	Associate professor	Department of Manufacturing Science and Engineering

3. Lecturer:

Name:	Title:	Affiliation (Department):
Dr. László Monostori	Professor	Department of Manufacturing Science and Engineering
Dr. Tibor Szalay	Associate professor	Department of Manufacturing Science and Engineering
Dr. Markos Sándor	Honorary Associate Professor	Department of Manufacturing Science and Engineering

4. Thematic background of the subject:

Process measurement, Signal processing, Artificial intelligence, Manufacturing processes, Machine tools and Manufacturing systems

5. Compulsory / suggested prerequisites:

There is no special prerequisite for this subject.

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

Modelling of the cutting process, basic tools and methods of model creation. Design of experiments (DoE). Simulation of the process, evaluation of the model. Tool condition monitoring, process diagnostics. Feature extraction, sensor integration data processing and analysis. Application of soft computing methods in monitoring. Connection of tool presetting, tool management and tool condition monitoring.

7. Method of education:

Lecture 2 h/w

8. Detailed thematic description of the subject:

Week	Lecture
1 - 2	Basic models of the cutting process, Taylor, Kienzle-Victor, Tobias, Stépán, Horváth etc. models.
3 - 4	Design of experiment methods, Taguchi concept

5 - 7	Cutting process measurement and its devices. Signal processing methods, new model generation methods.
8 -10	Tool condition monitoring systems. New solutions for measuring and detecting the tool wear
11 - 14	Supervision systems of manufacturing equipment, machining cells and manufacturing systems. Structure of supervision system, communication protocol, interaction methods, human machine cooperation.

9. Requirements and grading

a) in term-period

N.A.

b) in examination period

Oral exam.

c) 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 hr/week upon appointment by e-mail

12. Reference literature (recommended):

N.A.

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. Tibor Szalay	Associate professor	Department of Manufacturing Science and Engineering