



SUBJECT DATA SHEET AND REQUIREMENTS

last modified: 18th May 2016

MANUFACTURING SYSTEMS II.

GYÁRTÓRENDSZEREK II.

1	Code	Semester nr. or fall/spring	Contact hours/week (lect.+semin.+lab.)	Requirements p / e / s	Credit	Language
	BMEGEGT0007	spring	2+0+0	e	3	English

2. Subject's responsible:

Name:	Title:	Affiliation (Department):
Dr. József Váncza	Associate professor	Department of Manufacturing Science and Engineering

3. Lecturer:

Name:	Title:	Affiliation (Department):
Dr. József Váncza	Associate professor	Department of Manufacturing Science and Engineering

4. Thematic background of the subject:

Advanced knowledge of manufacturing systems with special regard to production networks.

5. Compulsory / suggested prerequisites:

Manufacturing Systems II (BMEGEGT9006).

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

The subject focuses on advanced issues of the analysis, design, simulation and optimisation of production networks.

7. Method of education:

Lecture 2 h/w

8. Detailed thematic description of the subject:

Week	Lecture
1.	Basic concepts and issues of production in networks.
2-3.	Architecture of production networks, typical network patterns; tiers, roles, relations; forward and reverse activities; production and logistic activities. Performance measures. Horizontal and vertical integration, extended enterprise.
4-5.	Configuration and design methods for production networks. Strategic alliances, facility location, capacity planning.
6-9.	The value of information. Management and control of production networks; strategic, tactical and operational level methods; inventory management and risk pooling.
10.	Risk management and robustness in production networks.
11.	Collaborative planning and channel coordination in supply networks.

12-13.	Value co-creation and service networks, sustainable production in networks.
14.	Simulation of production networks; advanced multi-agent simulation tools and techniques; fine and coarse-grained modelling approaches. Supply chain management (SCM) tools and systems.

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):

- M. Albrecht: Supply Chain Coordination Mechanisms—New Approaches for Collaborative Planning. Springer-Verlag Berlin Heidelberg, 2010
- W. Klibi, A. Martel, A. Guitouni A: The Design of Robust Value-Creating Supply Chain Networks: A Critical Review. European Journal of Operational Research 203(2):283-293, 2010
- Y. Koren: The Global Manufacturing Revolution: Product-Process-Business Integration and Reconfigurable Systems. Wiley, 2010
- M.T. Melo, S. Nickel, F. Saldanha-da-Gama: Facility Location and Supply Chain Management – A Review. European Journal of Operational Research 196(2):401-412, 2009
- J. Olhager, S. Pashaei, H. Sternberg: Design of Global Production and Distribution Networks: A Literature Review and Research Agenda. International Journal of Physical Distribution and Logistics Management 45(1/2):138-158, 2015
- P. Schönsleben: Integral Logistics Management – Operations and Supply Chain Management Within and Across Companies. CRC Press, fourth edition, 2012
- D. Simchi-Levi: Operations Rules – Delivering Customer Value through Flexible Operations. MIT Press, Cambridge, MA, 2010
- Y. Wang, S.W. Wallace, B. Shen, T-M. Choi: Service Supply Chain Management: A Review of Operational Models. European Journal of Operational Research 247(3):685-698, 2015

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. József Váncza	Associate professor	Department of Manufacturing Science and Engineering