SUBJECT DATASHEET

PRODUCTION MANAGEMENT

BMEGT20A018

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
PRODUCTION MANAGEMENT

ID (subject code) BMEGT20A018

Type of subject
contact lessons

Course types and lessons

Type	*Lessons*
Lecture	4
Practice	0
Laboratory	0

Type of assessment
term grade

Number of credits
5

Subject Coordinator

Name	*Position*	*Contact details*
Dr. Koltai Tamás	professor	koltai.tamas@gtk.bme.hu

Educational organisational unit for the subject
Department of Management and Business Economics

Subject website
https://edu.gtk.bme.hu

Language of the subject
magyar - HU

Curricular role of the subject, recommended number of terms
Programme: **Business administration and management Bachelor's Programme from 2021/22/Term 1**
Subject Role: **Compulsory**
Recommended semester: **4**

Programme: **Engineering Management Bachelor's Programme from 2015/16/Term 1**
Subject Role: **Compulsory**
Recommended semester: **4**

Programme: **Engineering Management Bachelor's Programme from 2017/18/Term 1**
Subject Role: **Compulsory**
Recommended semester: **4**

Programme: **Engineering Management Bachelor's Programme 2010**
Subject Role: **Compulsory**
Recommended semester: **4**

Direct prerequisites

Strong	Vállalatgazdaságtan I. (BMEGT20A006), Matematika A2a – Vektorfüggvények (BMETE90AX02)
Weak	None
Parallel	None
Exclusion	None

Validity of the Subject Description
Approved by the Faculty Board of Faculty of Economic and Social Sciences, Decree No: 2nd decision on the 580.034-4/2018 registration number Valid from: 31.01.2018.

2. OBJECTIVES AND LEARNING OUTCOMES

Objectives

The aim of the course is to present the basic characteristics of production processes and the basic methods required for the planning of production tasks and their efficient execution. The course examines the regularities of both production and service systems. It presents all important production management subtasks, from forecasting the production task, to securing resources, to inventory. When discussing the curriculum, in addition to reviewing the theoretical foundations, we discuss practical applications with the help of examples and case studies.

Academic results

Knowledge

1. Know all the important elements of the production management concept set.
2. Know and understand the organization and operation procedures of the technical processes in the field.
3. Understand the connections between the areas of corporate operation and production management.
4. Have an overview of the company processes belonging to the field and the possible application of the methods of the field.
5. Have confident methodological knowledge in different areas of production management, understand their application possibilities and perspectives.

Skills

1. Are able to synthesize the basic theories and concepts of the production process synthetically, to make rational arguments, i.e. to form an opinion and to defend one's opinion during discussions in various fields of operational communication.
2. Have the ability to manage, organize, control and coordinate the development of technical, technological, investment, manufacturing, logistics, quality assurance, IT processes.
3. In their professional vocabulary, they confidently use the vocabulary of the production management profession, the basic scientific concepts of the profession, and the elements of the special vocabulary based on them.

Attitude

1. Accept that the improvement and optimal operation of certain corporate processes can be achieved with quantitative techniques.
2. Are open to all forms of professional innovation, inclusive but not without thinking, accepting theoretical, practical and methodological innovations.
3. Are open to critical self-assessment, various forms of professional training, self-developing methods of intellectual worldview and strives for self-development in these areas.
4. Consciously represent the methods with which he / she works in his / her own profession and accepts the different methodological features of other disciplines.
5. Strive to make their decisions by seeking the opinions of supervised employees and, where possible, in cooperation with them.
6. Have a comprehensive system approach in the field of production management.

Independence and responsibility

1. Are able to perform and manage complex tasks in accordance with the professional expectations of a professional work community.
2. Shall organize their work and the activities of the staff under their management with the independence and responsibility appropriate to their place in the organizational structure.
3. Are independent, constructive and assertive in forms of cooperation inside and outside the institution.

Teaching methodology

Lectures, computational exercises, case studies, guest speakers, optional homework assignments.

Materials supporting learning

- Koltai T.: Termelésmenedzsment. Typotex Kft. Elektronikus Kiadó, 2009.
- Egyéb, az oktató által kiadott oktatási segédletek a tárgy Moodle oldalán. (https://edu.gtk.bme.hu)
- Koltai T.: A termelésmenedzsment alapjai I. A termelési feladat és a rendelkezésre álló erőforrások vizsgálata. Műegyetemi Kiadó, Budapest, 2001.
- Koltai T.: A termelésmenedzsment alapjai II. A termelési feladat végrehajtása. Műegyetemi Kiadó, Budapest, 2003.
- Vörös J.: Termelés- és szolgáltatásmenedzsment. Akadémiai Kiadó, Budapest, 2010
- Koltai T., Kalló N., Sebestyén Z., Tamás A.: Production and Organization Management. Lecture notes
- Material uploaded to the Moodle page of the course
- Waters, D.: Operations Management: Producing Goods and Services, Harlow: Addison Wesley, 2003.
- Nahmias, S.: Production and Operations Analysis. Irwin, 1993.
- Reid, R.D. & Sanders, N.R.: Operations Management: An Integrated Approach, 7th Edition, Wiley, 2020

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

The assessment of the learning outcomes formulated in point 2.2 takes place in the form of four midterm tests, written performance measurements (partial performance assessment).

Performance assessment methods

Partial performance assessment: a written test, typically consisting of computational tasks, theoretical questions and/or multiple-choice/true
or false questions, used to assess the application of the acquired material.

Percentage of performance assessments, conducted during the study period, within the rating

- **1st midterm**: 25%
- **2nd midterm**: 25%
- **3rd midterm**: 25%
- **4th midterm**: 25%
- **total**: 100%

Percentage of exam elements within the rating

Conditions for obtaining a signature, validity of the signature

Issuing grades

Excellent	95-100
Very good	90–94
Good	78–89
Satisfactory	65–77
Pass	51–64
Fail	0-50

Retake and late completion

1) A maximum of two of the four midterm tests held during the semester can be replaced or retaken. 2) Of the four midterm tests, the student can optionally choose which one he / she wants to replace. 3) Replacement is possible only if the student has participated in at least two midterms at its original time. 4) Replacement of each midterm tests is possible at the time announced at the beginning of the semester. 5) You must register in advance for the replacement occasion in the manner specified by the instructor. 6) There are no extra replacement midterm test options.

Coursework required for the completion of the subject

participation in contact hours	14×4=56
preparation for contact hours	14×2=28
preparation for the midterm tests	4×5=20
home assignments	4×1,5=6
independent acquisition of designated written curriculum	40
total	150

Approval and validity of subject requirements

Consulted with the Faculty Student Representative Committee, approved by Emma Lógó, PhD, Vice Dean for Education

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

To achieve the learning outcomes set out in section 2.2, the course consists of the following areas and topics.

1 Introduction. Historical overview, classification of production processes, product-process matrix
2 Significance of forecasting, grouping of forecasting methods
3 Forecasting a constant demand with a moving average and exponential smoothing, comparing the two methods
4 Forecasting trend-type demand using the Holt's method. Estimation of forecast errors, tracking signal calculation and evaluation
5 Basic concepts of inventory management, classical inventory control mechanisms, inventory management costs
6 Basic model of economic order quantity (EOQ) and sensitivity analysis, determination of reorder level in case of the EOQ model
7 Determining the economic production quantity (EPQ), reorder level for the EPQ model
8 Consideration of a quantity-discounts when determining the EOQ: proportional discount
9 Short-term capacity analysis: capacity characteristics, short-term capacity planning
10 Change of capacity as a function of time (consideration of the learning curve), consideration of reliability in capacity planning
11 Long-term capacity analysis: taking uncertainty into account
12 The task of aggregate production planning, the levels and reasons of aggregation, the range of necessary information
13 General formulation of linear production planning models, management decisions based on the results of linear production planning models, case study
14 Determining and evaluating the optimal product structure. Objective function coefficients, sensitivity analysis of right-hand parameters

Additional lecturers

Tamás Alexandra egyetemi tanársegéd tamas.alexandra@gtk.bme.hu

Approval and validity of subject requirements

Part III of the Subject Form is to be approved by the Head of Department of Management and Business Economics named under 1.8.