



## SUBJECT DATASHEET

### I. SUBJECT DESCRIPTION

#### 1. GENERAL DATA

1.1. Subject name (in Hungarian, in English)

Manufacturing process planning II. • Manufacturing process planning II.

1.2. Neptun code

BMEGEGTBG71

1.3. Type

study unit with contact hours

1.4. Course types and number of hours (weekly / semester)

course type	number of hours (weekly)	nature (connected / stand-alone)
lecture (theory)	2	-
exercise	1	coupled
laboratory exercise	1	coupled

1.5. Type of assessments (quality evaluation)

mid-term grade

1.6. ECTS

4

1.7. Subject coordinator

name: Dr. Geier Norbert  
post: adjunct  
contact: geier.norbert@gpk.bme.hu

1.8. Host organization

Department of Manufacturing Science and Engineering (<http://www.manuf.bme.hu>)

1.9. Course homepage

[http://manuf.bme.hu/?page\\_id=517](http://manuf.bme.hu/?page_id=517)

1.10. Course language

hungarian, hungarian, hungarian

1.11. Primary curriculum type

mandatory

1.12. Direct prerequisites

Strong prerequisite: BMEGEGTBG62, BMEGEGTBG64

Weak prerequisite: -

Parallel prerequisite: -

Milestone prerequisite: -

Excluding condition: -

(the subject cannot be taken if you have previously completed any of the following subjects or groups of subjects)

## 2. AIMS AND ACHIEVEMENTS

### 2.1. Aim

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Production Design II. Continuing the subject of Production Planning I introduces the students to the traditional methods of designing parts production processes, the characteristics of production processes, the types of production design tasks, the levels of production planning, the methods of design. The aim is for the students to acquire theoretical knowledge and practice in the design of the manufacturing processes of machined parts, in the selection of the necessary equipment and tools, in the creation of technology that takes into account the machining conditions, taking into account the basic quality and economy requirements.

### 2.2. Learning outcomes

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Competences that can be acquired by completing the course:

#### A. Knowledge

- It provides an overview of the parts production planning steps and their sequence.
- Knows the basic principles of production design, methods and procedures for solving production design tasks and problems.
- It interprets the consequences of manufacturing conditions on the detail of manufacturing design.
- He is aware of manufacturing errors and the effects of manufacturing tolerances on production planning.
- He is familiar with the basic system of application of basic material separation, cutting and heat treatment operations, as well as surface finishing methods.
- Informed about the principles and methods of selecting the equipment and tools required for cutting machining.
- Knows the principles and methods of determining cutting parameters.
- He is aware of the motion planning principles to be applied during machining and the basic motion cycles that can be used on NC machines.
- Understands methods for determining the time required for the manufacturing process.
- Defines the content elements of commonly used production design documentation.

#### B. Ability

- Creates a complex manufacturing technology plan for a specific part.
- Able to determine the required detail of the technology to be produced by analyzing the manufacturing conditions.
- Able to determine the equipment and tools suitable for the production task.
- It is prepared to define the basic technological parameters.
- Able to use offline and online versions of technological information databases and knowledge databases containing the data of modern production equipment, to interpret the information contained therein.
- Creates the technologically and economically correct motion cycles required for machining.
- Produces the results of production planning in a form understandable to CNC controls used on modern machine tools.
- Apply methods to calculate the time required for manufacturing processes.

- It defines the results of technological design in a concise way that is understandable to stakeholders.
- He expresses his thoughts in an orderly form, orally and in writing.

### C. Attitude

- Open to collaborating with faculty and fellow students to expand knowledge.
- It expands your knowledge by constantly acquiring knowledge in order to keep your professional knowledge up to date.
- It seeks to learn about and routinely use the tools needed to solve manufacturing technology problems.
- It strives for an accurate and error-free solution.
- Open to the use of information technology tools.
- He is self-critical, approaching the design of parts manufacturing technology with sufficient confidence and humility.
- It strives to apply the principles of economy and quality in solving production technology tasks.

### D. Independence and responsibility

- It independently thinks through component manufacturing tasks and problems and solves them based on specific resources.
- Collaborates in discussing well-founded critical remarks.
- In some situations, as part of a team, you work with your fellow students to solve tasks.
- It carries out its work with a systematic approach in mind.
- With his knowledge, he makes a responsible, informed decision based on his analyzes.

### 2.3. Teaching methodology

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Theoretical and methodological bases learned in lectures, calculation and planning exercises for mastering the application of knowledge, discussing solution alternatives during task consultations, professional reasoning in favor of decision alternatives, tasks prepared independently and in group work, laboratory exercises, cutting practice on machine tools .

### 2.4. Support materials

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#### a) Textbooks

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#### b) Lecture notes

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#### c) Online materials

Kutrovác Lajos: Gyártástervezés- Előadásvázlat: [http://manuf.bme.hu/?page\\_id=517](http://manuf.bme.hu/?page_id=517)

Electronic notes: [http://manuf.bme.hu/?page\\_id=517](http://manuf.bme.hu/?page_id=517)

### 2.5. Validity of the course description

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Start of validity: 2021. September 1.

End of validity: 2026. June 30.

## II. SUBJECT REQUIREMENT

### 3. ACHIEVEMENT CONTROL AND EVALUATION

#### 3.1 General rules

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The evaluation of the learning outcomes is a mid-year written performance measurement (summary study performance evaluation, during which the theoretical curriculum and its application in solving specific tasks are examined), two submitted (one rotationally symmetric and one cabinet-like component) design homework, and based on active participation in practices and laboratories (partial performance evaluation).

#### 3.2 Assessment methods

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##### A. Detailed description of mid-term assessments

###### 1. Mid-term assessment

type: summative assessment

count: 1

purpose, A complex, written way of evaluating the knowledge and ability type competence elements of the subject  
description: in the form of an in-house dissertation. The dissertation basically focuses on the application of the acquired knowledge, so it focuses on the recognition and solution of the problem, ie in addition to theoretical questions, practical (computational) tasks must be solved during the performance evaluation. The part of the curriculum on which the assessment is based covers the theoretical knowledge given in the lectures and the skills acquired in the exercises. Available working time is 60 minutes;

###### 2. Mid-term assessment

type: formative assessment, simple

count: 2

purpose, The subject is a complex way of evaluating the knowledge, ability, attitude, as well as the competence and  
description: responsibility type competence elements of the subject, the form of which is the homework done individually or in groups. Homework: Preparation of a technological plan for 1-1 rotationally symmetrical and cabinet-like parts. The deadline for completing the first task is the practical lesson in the 8th school week. The second assignment can only be issued if, in the opinion of the supervisor, the first assignment has been completed at least in manuscript by the end of the internship hour in the 11th teaching week (this means the deadline for completing assignment 1) and documented by the supervisor on the student's worksheet. Otherwise, Problem 2 cannot be issued and credits for the subject cannot be obtained in the given semester. The deadline for submission of both assignments is the last practical hour of the semester. The scores of the partial performance evaluation are determined by the practice leader based on the level of performance of the listed competence elements.

###### 3. Mid-term assessment

type: diagnostic assessment

count: 6

purpose, A simplified way of assessing the knowledge, ability, attitude, as well as the competence and  
description: responsibility type competence elements of the subject, which takes the form of a prepared appearance and active, active participation in all laboratory practices. The uniform assessment principles, which are announced in the first lesson of the semester, are defined jointly by the person in charge of the subject and the teachers of the subject.

## B. Detailed description of assessments performed during the examination period (if relevant)

Elements of the exam:

1. written partial exam  
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2. oral partial exam  
-
3. practical partial exam  
-
4. inclusion of mid-term results  
-

### 3.3 The weight of mid-term assessments in signing or in final grading

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identifier	weight
1 . Mid-term assessment	50 %
2 . Mid-term assessment	40 %
3 . Mid-term assessment	10 %

### 3.4 The weight of partial exams in grade (if relevant)

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type	weight
written partial exam	0 %
oral partial exam	0 %
practical partial exam	0 %
inclusion of mid-term results	0 %

### 3.5 Determination of the grade

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grade • [ECTS]	the grade expressed in percents
very good(5) • Excellent [A]	above 90%
very good(5) • Very Good [B]	86% .. 90%
good(4) • Good [C]	71% .. 86%
satisfactory(3) • Satisfactory [D]	56% .. 71%
sufficient(2) • Pass [E]	40% .. 56%
insufficient(1) • Fail [F]	below 40%

The lower limit specified for each grade already belongs to that grade.

### 3.6 Attendance and participation requirements

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Must be present at at least **70%** (rounded down) of lectures.

At least **70%** the exercises (rounded down) must be actively attended.

At least **100%** of laboratory practices (rounded down) must be actively attended.

### 3.7 Special rules for improving, retaken and replacement

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The special rules for improving, retaken and replacement shall be interpreted and applied in conjunction with the general rules of the CoS (TVSZ).

Need mid-term assessment to individually complete?

*yes*

Can the submitted and accepted partial performance assessments be resubmitted until the end of the replacement period in order to achieve better results?

*yes*

The way of retaking or improving a summary assessment for the first time:

*each summative assessment can be retaken or improved*

Is the retaking-improving of a summary assessment allowed, and if so, than which form:

*retake or grade-improving exam possible for each assesment separately*

Taking into account the previous result in case of improvement, retaken-improvement:

*new result overrides previous result*

The way of retaking or improving a partial assessment for the first time:

*partial assesment(s) in this group can be improved or repeated once up to the end of the repeat period*

Completion of unfinished laboratory exercises:

*missed laboratory practices must be performed in the teaching term at pre-arranged appointment*

Repetition of laboratory exercises that performed incorrectly (eg.: mistake in documentation):

*incorrectly performed laboratory practice (e.g. Incomplete/incorrect report) can be corrected by repeating the practice*

### 3.8 Study work required to complete the course

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<b>Activity</b>	<b>hours / semester</b>
participation in contact classes	56
mid-term preparation for practices	7
preparation for laboratory practices	14
preparation for summary assessments	16
elaboration of a partial assessment task	8
additional time required to complete the subject	19
<b>summary</b>	<b>120</b>

### 3.9. Validity of subject requirements

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Start of validity: 2021. September 1.

End of validity: 2026. June 30.

## 4. ADDITIONAL INFORMATION

### 4.1 Primary course

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The primary (main) course of the subject in which it is advertised and to which the competencies are related:

Mechanical engineering

### 4.2 Link to the purpose and (special) compensations of the Regulation KKK

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This course aims to improve the following competencies defined in the Regulation KKK>

a) knowledge

- Student has the knowledge and understanding of the basic facts and limits of the knowledge and activity systems in the field of engineering and of the expected directions of development and improvement.

b) ability

- Student has the ability to apply an integrated knowledge of machinery, mechanical equipment, systems and processes, materials and technologies for mechanical engineering, and related electronics and information technology.

c) attitude

- Student is open and receptive to learning, embracing and authentically communicating professional, technological development and innovation in engineering.

d) independence and responsibility

- Student has the ability to work independently on engineering tasks.

#### *4.3 Prerequisites for completing the course*

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Knowledge type competencies

(a set of prior knowledge, the existence of which is not obligatory, but greatly facilitates the successful completion of the subject)		-
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Ability type competencies

(a set of prior abilities and skills, the existence of which is not obligatory, but greatly contributes to the successful completion of the subject)		-
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