

**Training plan in the topic group of
ENGINEERING MATERIAL SCIENCE, PRODUCTION SYSTEMS AND
PROCESSES**

I. Training plan for the educational-research programme

	Semester			
	I.	II.	III.	IV.
1. Natural sciences foundation (min. 3 subjects required)				
Mathematics				
Modern Analysis_GEMAN402-a	o			
Differential and Integral Equations GEMAN411-a		x		
Numerical Methods I_ GEMAK411-a		x	x	
Numerical Methods II. GEMAK412-a			x	
Methods of Optimization GEMAK 413-a	x	x	x	
<u>Other optional subjects in mathematics</u>				
Mechanics				
Continuum Mechanics GEMET401-a	o			
Nonlinear Vibrations GEMET411-a		x		
Mechanics of Non-elastic Materials GEMET405-a			x	
Finite Element Method GEMET407-a		x		
<u>Other optional subjects in mechanics</u>	x	x	x	
<u>Thermodynamics I. GEAHT401-a</u>		#		
<u>Thermodynamics II. GEAHT402-a</u>			x	
2. Professional foundation (min 1 subject required)				
Material Science GEMTT500P-a	o			
Fundamentals of Machine Component Design GEGET405-a	x			
Measurement Systems GEVAU407-a		x	x	
<u>Other optional subjects</u>	x	x	x	
3. Subjects for the complex examination (min 2 subjects required)				
3.1. Materials engineering and mechanical technology				
Materials Science and Engineering GEMTT501-a		+		
Engineering Polimers GEMTT547-a			x	
Engineering Ceramics GEMTT505-a			x	
Theory of Welding GEMTT511-a-a		+		
Weldability of Materials GEMTT512		x		
Welding technology, welding processes GEMTT513-a			x	

Theory of Metal Forming GEMTT531-a		+		
Technology of Metal Forming GEMTT532-a			x	
Theory and Technology of Heat Treatment GEMTT522-a		+		
Advanced Surface Engineering GEMTT525-a			x	
<u>Other optional subjects</u>	x	x	x	

3.2. Manufacturing systems and processes				
Theory of Cutting GEGTT421-a		+		
Design of Production Devices GESGT414-a			x	
Kinematical Surfaces, Machining and Production Devices GEGTT403-a		x		
Quality Management GEGTT441-a		+		
Engineering application of experimental design methods GEGTT413-a			x	
Technological Processes and Manufacturing Systems GEGTT401-a		+		
Non-traditional Machining Processes GEGTT450-a			x	
NC Technique in Part Production GEGTT423-a		x		
<u>Other optional subjects</u>	x	x	x	
3.3. Assembly systems				
Assembly Processes and Systems GEGTT414-a		+		
Engineering Application of Experimental Design Methods GEGTT413-a			x	
Planning Assembly Procedures GEGTT480-a		+		
Design of Production Devices GESGT414-a			x	
<u>Other optional subjects</u>	x	x	x	
3.4. Structural integrity				
Structural Integrity GEMTT541-a		+		
Damage Theory GEMTT542-a		x		
Fracture Mechanics GEMTT543-a			x	
<u>Other optional subjects</u>	x	x	x	
4 hours per week of teaching work in graduate courses	t	t	t	t
Research work	k	k	k	k
Written research report		b		b

- o - the subject is compulsory,
- x - optional from the given group of subjects
- # - compulsory for non-engineering graduates
- + - compulsory from the chosen subject group
- t - teaching activity,
- k - research work,
- b - report

II. Training plan for the research and dissertation phase

In the second four-semester research and dissertation phase, the doctoral student carries out basic research work, publishes the results of his/her research and prepares a thesis suitable for scientific workshop discussion.

In this phase of the doctoral programme, it is of paramount importance that the credits needed to complete the 240 credits required for the full programme are obtained through research and publication activities in addition to those acquired in the first four semesters.

The requirements for research and publication credits are set out in the School's credit system, which is also available on the School's website.

Research credits may be obtained

a) independent research on a dissertation topic, the results of which the doctoral student shall present in a written and peer-reviewed thesis submitted to the Doctoral School every semester, as well as at a related research seminar: the maximum value of this research shall be 15 credits per semester;

b) additional credits may be obtained by participating in research projects related to departmental research. The maximum value per semester is 5 credits.

Also at this stage of the training, a maximum of 5 credits per semester may be awarded for contributions to teaching activities, but not more than 6 semesters in any eight semesters of training.