

**TECHNICAL UNIVERSITY OF GABROVO**  
**FACULTY OF MECHANICAL AND PRECISION ENGINEERING**

Endorsed with Academic Council resolution  
Record № 1 dated 06.10.2009

Approved by  
Rector /s/

**QUALIFICATION REFERENCE**

Degree course: **TECHNOLOGY OF MATERIALS AND MATERIALS SCIENCE**  
Educational-qualification: **MASTER**  
Field of higher education: **TECHNICAL SCIENCES**  
Professional trend: **5.6 MATERIALS AND MATERIALS SCIENCE**  
Professional qualification: **MASTER-ENGINEER**

**ANNOTATION**

This qualification reference specifies the vocational purpose of Master's degree holders in Technology of Materials(TMMS) and Materials Science as well as all qualification requirements for their training and the prospective areas of their professional realization.

**VOCATIONAL PURPOSE**

Specialists who have majored in TMMS are well prepared in terms of and in compliance with contemporary scientific and research achievements in the area of production, treatment, investigation and introduction of both conventional and new materials and technologies used in mechanical engineering, electrical engineering, transportation, power engineering, civil engineering, food industry and other branches of national economy. Likewise they are well familiar with systems for quality management, optimization of production processes in material treatment (including high energy consumption methods), management of materials and technologies.

In addition successful graduates acquire in-depth knowledge in the field of computer simulation, design of plastic products, corporate finances, etc.

Students receive solid theoretic knowledge and practical experience which determine their vocational aptitude and prospective approach to private enterprise and development of their own business, wherein they could carry out both managerial and executive functions. Similarly, they are well qualified to hold teaching positions in institutes of higher learning or other educational centers and are eligible to continue their studies in doctoral degree courses.

## **TRAINING REQUIREMENTS**

Master's degree course training provides specialists with required knowledge and skills in the methods, technologies and equipment used in the production and treatment of materials employed in national economy. Training also ensures adequate amount of professional capacity to raise the quality of manufactured products and introduce new manufacturing technologies which meet dynamically changing market demands. Master's degree holders in TMMS are well able to employ modern computer-based methods in technology process design, technical equipment for application in state-of-the-art production technologies. They are also well familiar with organization and management of innovations, companies, labor economy, marketing, etc.

Training in the Master's degree course is carried out with regard to further development of professional profile acquired through the bachelor

degree course studies. It takes two academic semesters for both full-time and part-time students and is completed with defense of thesis work, which is written during the second semester.

## **AREAS OF PROFESSIONAL REALIZATION**

Specialists who are Master's degree holders in TMMS are fit for work as product engineers, designers, developers, engineering researchers, diagnostic and maintenance experts, advertisement agents, managers and organizers in present day structures of national economy. They are also eligible to continue their studies in doctoral degree courses.

This qualification reference was endorsed by the Faculty Council with Record № 5 dated 23.06.2009.

Department Chair /s/

Dean /s/

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## CURRICULUM

Degree course: **TECHNOLOGY OF MATERIALS AND MATERIALS SCIENCE**

Academic degree: **MASTER-ENGINEER**

Higher education area: **TECHNICAL SCIENCE**

Professional trend: **5.1 MATERIALS AND MATERIALS SCIENCE**

Professional qualification: **MASTER-ENGINEER**

Form of training: **FULL-TIME**

Duration of training: **2 TWO/ SEMESTERS**

№	SUBJECTS TAUGHT	FORMS OF ASSESSMENT		COURSE-WORK	WORKLOAD IN NUMBER OF ACADEMIC HOURS				WEEKLY DISTRIBUTION	TYPE OF SUBJECT	ECTS CREDITS T/C
		E - EXAMINATION	CA – CONTINUOUS ASSESSMENT		LECT-URES	SEMI-NAR CLASSES.	LABORATORY CLASS-ES.	TOTAL	L + SC + LC		
1	2	3	4	5	6	7	8	9	10	11	12
	<b>First Semester</b>										
1.	Technologies for Intensified Plastic Molding	E			30	0	30	60	2+0+2	C	5/2.3
2.	Casting of Non-Ferrous Metals and Alloys	E			30	0	30	60	2+0+2	C	5/2.3
3.	Composite Materials	E			30	0	30	60	2+0+2	C	5/2.3
4.	Intellectual Property	E			30	30	0	60	2+2+0	C	5/2.3
5.	Thermal Treatment of Tool Steels and Alloys		CA		30	0	15	45	2+0+1	C	4/1.7
6.1	Financial and Economic Analysis of Business		CA		30	15	0	45	2+1+0	E	4/1.7
6.2	Optimization of Technological Processes in Material Treatment		CA		30	0	15	45	2+0+1	E	4/1.7
7.	Technologies for Intensified Plastic Form Processing–project Casting of Non-Ferrous Metals and Alloys– project									E	2/0
8.	Complex Prevention and Control of Pollution		CA		30	0	15	45	2+0+1	O	4/1.7
	<b>First semester</b>	<b>4 E</b>	<b>2 CA</b>		<b>180</b>	<b>45(30)</b>	<b>105(120)</b>	<b>330</b>	<b>12+3+7</b>		<b>Σ 30</b>

1	2	3	4	5	6	7	8	9	10	11	12
	<i>Second Semester</i>										
9.	Quality Management Systems	E			24	0	16	40	3+0+2	C	3/1.5
10.	Plastic Products Design	E			32	0	24	56	4+0+3	C	4/2
11.	High-Energy Plastic Deformation Technologies	E			32	0	24	56	4+0+3	C	4/2
12.	Computer Design		CA		8	0	16	24	1+0+2	C	2/1
13.	Management of Economy	E			32	24	0	56	4+3+0	O	4/2
14.	Pre-graduation Apprenticeship										2/0
15.	Graduation Thesis Work										15/0
	<i>Second semester</i>	<b>3E</b>	<b>1CA</b>		<b>96</b>	<b>0</b>	<b>80</b>	<b>176</b>	<b>12+0+10</b>		<b>Σ 30</b>
	<i>Total for the entire course of study</i>	<b>7E</b>	<b>3 CA</b>		<b>276</b>	<b>45(30)</b>	<b>185(200)</b>	<b>506</b>			<b>Σ 60</b>

**ABBREVIATIONS USED:**

**C** – compulsory subjects

**E** – elective subjects

**O** – optional subjects

SUBJECTS		WORKLOAD	
Type	Number	Hours	%
C	10	461	91
E	2	45	9
Total	12	506	100,0
O	2	101	

Note: The numbers quoted in column 11 under the abbreviations T / C refer to: T – total number of credits, C – credits from contact hours.

The curriculum was endorsed by the Faculty Board resolution, Record No 5 dated 23.06.2009.

Department Chair /s/

Dean /s/