

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: **PRECISION ENGINEERING AND EQUIPMENT**

Educational-qualification degree: **MASTER**

Field of higher education: **TECHNICAL SCIENCES**

Professional trend: **5.1 MACHINE ENGINEERING**

Professional qualification: **MASTER-ENGINEER**

ANNOTATION

This qualification reference specifies the vocational purpose of specialists who are Master's degree holders in Precision Engineering and Equipment(PEE), from professional trend 5.1 "Machine engineering" as well as the qualification requirements for their training.

VOCATIONAL PURPOSE

Specialists who have majored in PEE are able to carry out, research, design and management; pedagogical work in institutes of higher learning , education centers or other activities related with design, manufacture, operation and repair of industrial equipment, machines, plant items as well

as organization and management of companies operating in the field of mechanical engineering, precision engineering, transportation, medical equipment, ecology,, civil engineering, education and other branches depending on their professional competence.

TRAINING REQUIREMENTS

Training is carried out in two basic aspects:

1. Profiling and further in-depth preparation in conformity with the educational-qualification degree of bachelor in PEE which takes two semesters of training.

2. Profiling and preparation in conformity with the Master's program in Mechatronics in combination with the acquired knowledge of precision engineering, electronics and computer-based control of these systems.

Training provides:

- Theoretic and specialized preparation in design and manufacture; measurements and tests of modern industrial equipment, machines, units, plant items and elements;
- Development of skills for adaptability to social, economic and technology changes taking place in mechanical and precision engineering;
- Conditions for international comparison of acquired knowledge and skills for teamwork.

AREAS OF PROFESSIONAL REALIZATION

Successful graduates acquire the professional qualification of master-engineer and are qualified to hold positions as:

- Designers and product engineers of items in the field of mechanical and precision engineering;
- Coordinators of program teams which include mechanical and electrical engineers;
- Managers of manufacturing companies or units; centers for development and introduction of modern technologies;
- Experts attached to companies and affiliations;
- Metrology engineers in bodies for quality control and centers for environmental monitoring;
- Auditors in quality management centers;
- Diagnostic engineers in centers for diagnostic, maintenance and servicing of machines and equipment.

They are eligible to continue their studies in a doctoral degree course or work as researchers and academic teachers.

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

Department Chair /s/

Dean /s/

TECHNICAL UNIVERSITY OF GABROVO
FACULTY OF MECHANICAL AND PRECISION ENGINEERING

Endorsed with Academic Council resolution
Record № 11 dated 30.06.2009

Approved by
Rector /s/

CURRICULUM

Degree course: **MECHANICAL AND PRECISION ENGINEERING**

Graduate program: **MECHATRONICS**

Academic degree: **MASTER**

Higher education area: **TECHNICAL SCIENCES**

Professional trend: **5.1 MECHANICAL ENGINEERING**

Professional qualification: **MASTER-ENGINEER**

Form of training: **FULL-TIME**

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

No	SUBJECTS TAUGHT	FORMS OF ASSESSMENT		COURSE-WORK	WORKLOAD ON NUMBER OF ACADEMIC HOURS				WEEKLY DISTRIBUTION	TYPE OF SUBJECT	ECTS CREDITS T / C
		E - EXAMINATION	CA – CONTINUOUS ASSESSMENT		LEC-TURES	SEMINAR CLASSES	LABORATORY CLASS-ES	TOTAL	L + SC + LC		
1	2	3	4	5	6	7	8	9	10	11	12
	<i>First Semester</i>										
1.	Elements and Mechanisms in Mechatronics		CA		30	0	15	45	2+0+1	C	5/1.7
2.	Micro- and Nanomechatronics	E			30	0	15	45	2+0+1	C	5/1.7
3.1.	Drive Engineering	E			30	0	15	45	2+0+1	E	5/1.7
3.2.	Driving Hydro-Pneumatic Systems	E			30	0	15	45	2+0+1	E	5/1.7
4.1	Automation Devices	E			30	0	15	45	2+0+1	E	5/1.7
4.2	Computer-Based Management	E			30	0	15	45	2+0+1	E	5/1.7
5.	CAD Systems in Mechatronics		CA		30	0	15	45	2+0+1	C	5/1.7
6.	Sensors and Actuators in Mechatronics	E			30	0	15	45	2+0+1	C	5/1.7
7.	Mechanical Vibrations	E			30	15	0	45	2+1+0	O	5/1.7
	<i>First semester</i>	4 E	2CA		180	0	90	270	12+0+6=18		Σ 30

1	2	3	4	5	6	7	8	9	10	11	12
	<i>Second Semester</i>										
8.	Programmable Logic Controllers		CA		16	0	24	40	2+0+3	C	3/1.5
9.	Computer-Aided Measurement Systems	E			32	0	24	56	4+0+3	C	4/2
10.	Optical Devices and Systems in Mechatronics	E			32	0	24	56	4+0+3	C	4/2
11.	Nonlinear Problems by Finite Element Method		CA		8	0	16	24	1+0+2	C	2/0.9
12.	Management of Economy	E			24	24	0	48	4+3+0	O	4/1.8
13.	Pre-graduation Apprenticeship										2/0
14.	Graduation Thesis										15/0
	<i>Second semester</i>	2E	2CA		88	0	88	176	11+0+11=22		Σ 30
	<i>Total for the entire course of study</i>	6E	4CA		268	0	178	446			Σ 60

ABBREVIATIONS USED:

- C – compulsory subjects
- E – elective subjects
- O – optional subjects

Subjects		Workload	
Type	Number	Hours	%
C	8	356	75
E	2	90	25
Total:	10	446	100
O	2	93	

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/