

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: **ENVIRONMENTAL PROTECTION TECHNOLOGIES AND EQUIPMENT**

Educational-qualification degree: **MASTER**

Field of higher education: **TECHNICAL SCIENCES**

Professional trend: **5.13 GENERAL ENGINEERING**

Professional course: **MASTER-ENGINEER**

ANNOTATION

This qualification reference specifies the vocational purpose of Master's degree holders in Environmental Protection Technologies and Equipment (EPTE) as well as the qualification requirements for their training.

Specialists who major in EPTE have been trained to do research, monitoring, management and prevention related with production and operation of equipment, machinery and items utilized in ecology. They also are qualified to hold teaching positions in institutes of higher learning and do jobs connected with monitoring of industrial pollution resulting from activities of companies dealing with mechanical engineering and other related branches of industry.

VOCATIONAL PURPOSE

Successful course graduates are well able to carry out research, monitoring, management and prevention related to production and operation of equipment, machines, devices and sets used in ecology; hold positions as

teachers/instructors in institutes of higher learning or education centers which design, operate and repair industrial equipment, machines and devices utilized in ecology; be actively involved in activities related to pollution monitoring in the area of mechanical engineering industry, its affiliated branches or other sectors of industry and/or education to the extent allowed by their expertise and competence.

TRAINING REQUIREMENTS

Training in the Master's degree course is carried out in two semesters as an in-depth extension and further profiling of the training received during studies in the bachelor degree course (engineer –ecologist). The last semester is intended for thesis development.

The academic objectives of this course ensure:

- Theoretical and specialized training in design, production, measurement and test of modern industrial equipment, machinery, items and devices for complex prevention of industrial pollution;

- Development of adaptability skills for work in a context of continual social, economic and technology changes taking place in contemporary equipment and technology for pollution prevention;

- Conditions for international comparison of acquired knowledge and skills for teamwork.

AREAS OF PROFESSIONAL REALIZATION

Successful course graduates take the degree master-engineer and possess the qualification to hold prospective positions as:

- Designers and product engineers of equipment and devices for control and analysis of industrial pollution;

- Coordinators of program teams staffed by chemical engineers, mechanical engineers and electrical engineers;

- Managers of production companies or units, centers for development and introduction of modern technologies in ecology;

- Experts attached to state and private companies and affiliations in the sphere of ecology;

- Metrology engineers and heads of mobile and standing stations for environmental control of emissions;

- Diagnostic experts in units of technical maintenance and service of machinery, equipment and devices for control of industrial pollution.

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

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

Department Chair /s/

Dean /s/

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CURRICULUM

Degree course: **ENVIRONMENTAL PROTECTION TECHNOLOGIES AND EQUIPMENT**

Academic degree: **MASTER**

Higher education area: **TECHNICAL SCIENCES**

Professional trend: **5.13 GENERAL 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.	Modeling and Simulation of Industrial Pollution	E			30	0	15	45	2+0+1	C	4/1.7
2.	Automated Waste Management Systems	E			30	0	15	45	2+0+1	C	4/1.7
3	Special Optical Methods and Devices for Environmental Monitoring	E			30	0	30	60	2+0+2	C	6/2.3
4.	Integrated Management Systems		CW		30	0	15	45	2+0+1	C	4/1.7
5.	Signal Analysis		CW		30	0	15	45	2+0+1	C	4/1.7
6.1	Unconventional Energy Sources	E			30	0	30	60	2+0+2	E	6/2.3
6.2	Materials Recycling	E			30	0	30	60	2+0+2	E	6/2.3
7.	Course Project on Subject № 1 or № 2									E	2/0
8.	Reverse Osmosis Membrane Technologies for Fluid Treatment	E			30	0	15	45	2+0+1	O	4/1.7
	<i>First semester</i>	<i>4 E</i>	<i>2 CW</i>		<i>180</i>	<i>0</i>	<i>120</i>	<i>300</i>	<i>12+0+10</i>		<i>Σ 30</i>

1	2	3	4	5	6	7	8	9	10	11	12
	<i>Second Semester</i>										
9.	Monitoring of Industrial and Urban Noise and Vibration	E			32	0	24	56	4+0+3	C	4/2
10.	Environmental Monitoring	E			32	0	32	64	4+0+4	C	5/2.4
11.	Statistical Data Processing of Ecological Parameters' Measurement	E			32	0	24	56	4+0+3	C	4/2
12.	Modern Methods for Identifications of Pollutants	E			32	24	0	56	4+3+0	O	4/2
13.	Pre-graduation Apprenticeship										2/0
14.	Graduation Thesis Work										15/0
	<i>Second semester</i>	<i>3E</i>			<i>96</i>	<i>0</i>	<i>80</i>	<i>176</i>	<i>12+0+10</i>		<i>Σ 30</i>
	<i>Total for the entire course of study</i>	<i>7E</i>	<i>2 CW</i>		<i>276</i>	<i>0</i>	<i>200</i>	<i>476</i>			<i>Σ 60</i>

ABBREVIATIONS USED:

C – compulsory subjects

E – elective subjects

O – optional subjects

Subjects		Workload	
Type	Number	Hours	%
C	8	416	86
E	1	60	14
Total:	9	476	100
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/