Module Title and Purpose	**1.**Module Title, Code **WATER PROTECTION** **30-MBU-620** **Elective professional**
	2. Aims **/** Goals of the Module • Acquiring knowledge about basic properties and processes in natural water bodies, • Technologies of wastewater treatment, water quality modeling and legal water protection.
Module Delivery	**3.** Contents: Basic ecological principles: biotic and abiotic factors, biotopes, biocenosis, ecosystems. Water Properties: structure, physical, chemical, biological,. Water quality: physical, chemical and biological indicators. Changes in water quality: pollution sources, wastewater types, water auto-purification Water quality models: empirical models, numerical models, QUALL, WASP Aquatic systems degradation: eutrophication, chronic and acute pollution , Water quality management: political and sociological issues, legal measures, physical planning, financial and economic measures, scientific and technological measures, institutional measures, water protection plans and programs , Wastewater treatment: general principles, mechanical treatment, physic-chemical treatment , Wastewater treatment: biological – conventional treatment with active sludge , Wastewater treatment: biological – extended aeration, SBR , Wastewater treatment: biological – nitrogen and phosphorus removal , Wastewater treatment: sludge treatment , Wastewater treatment: alternative wastewater treatment , Wastewater treatment: alternative procedures , Mixing models in lakes and seas: (VISUAL PLUMES, CORMIX) , Best management practices in runoff treatment ,. Non point pollution control: phenomenon, sources, control techniques .
	4. Literature / Indicative Reading List: [1]Hadjic E., 2013. Osnove zastite podzemnih voda u granularnim sredinama, Sarajevë. [2]Kaludjerovic D., 2009. 3D matematicki modeli kretanja podzemnih voda i transporta zagadenja u hidrogeologiji, Beograd [3]Kresic N., Vujasinovic S., Matic I., 2007. Remidijacia podzemnih voda i geosredine, Beograd. [4]Filipovic B., Vujasinovic S., 1982. Zastita podzemnih voda, Beograd [5]Vujasinovic S., 1988. Hidrogeoloski Praktikum – Zagadjivanje i zastita podzemnih voda, Beograd.
	5. / Teaching and Learning Methods:

	Lectures, exercises, consultations, graphic works Total Contact Hours: **28+28+3=59** hours Range of other Learning Methods: Total Study Hours: **66** hours Total contact and study hours: **125** hours
Module Assessment	**6.** Module Learning Outcomes : • Acquiring basic knowledge about natural and wastewater properties, anthropogenic impacts on water quality, • Legal measures on water protection, water quality modeling and wastewater treatment.
	7. Assessment Methods: Participation in classes, mid-term test 1, mid-term test 2, written examination, oral examination **Number, type and weighting of elements/:** Participation 10 %, project: 20 %, written exam: 30%, oral exam: 40% Total 100%.
Module Management	**8. ECTS** Credit Points and Duration 5 ECTS, one semester, (IV)
	9. Contact Person
Compiled by:	**H. Çadraku**
Data / Date	