

## New Master's Degree Curriculum "Bioeconomy" TEACHING PLAN

New Master's Degree Curriculum has been elaborated within the **EU Erasmus+ Programme funded project "New Master's Degree Curricula for Sustainable Bioeconomy in Uzbekistan"** (abbreviation of the project used here and in the other documents - BioEcUz). **Project No.519294-EPP-1-2020-1-LV-EPPKA2-CBHE-JP.**

The programme has been elaborated by taking into consideration Uzbekistan's regulations on requirements for a master level curricula. Number of hours is planned according to the resolution of the Uzbekistan's Cabinet of Ministers "On measures to improve the system of organizing the educational process in higher educational institutions" dated December 31, 2020.

The resolution predicts the following:

- 1 ECTS (credit) = 30 hours, of whom 9 contact hours and 21 independent work;
- The proportion of classroom hours and independent work for master level studies is 30/70;
- 1 academic hour = 40 minutes.

Study module and courses	Volume (ECTS)	Number of contact hours (lectures and seminars)	Independent study hours	Total hours	Semester	Credits P1 LBTU	Credits P5 VMU	Credits P6 JAMK	Credits UZ HEIs	Credits at the TOTAL
<b>Study module No. 1: Sustainable production and use of bioresources</b>	<b>30</b>	<b>270</b>	<b>630</b>	<b>900</b>	<b>1</b>	<b>6,0</b>	<b>18,0</b>	<b>6,0</b>	<b>0</b>	<b>30,0</b>
1.1. Bioeconomy development and policy	8	72	168	240	1	2,0	6,0	0	0	8,0
1.2. Sustainable crop and livestock production and consumption	9	81	189	270	1	4,0	3,0	2,0	0	9,0
1.3. Sustainable forestry	5	45	105	150	1	0	3,0	2,0	0	5,0
1.4. Sustainable aquaculture and water management	8	72	168	240	1	0	6,0	2,0	0	8,0

<b>Study module No. 2: Bio-resources based manufacturing and processing</b>	<b>16</b>	<b>144</b>	<b>336</b>	<b>480</b>	<b>2</b>	<b>9,0</b>	<b>2,0</b>	<b>5,0</b>	<b>0</b>	<b>16,0</b>
2.1. Bioproducts and bio-based value chains	5	45	105	150	2	0	0	5,0	0	5,0
2.2. Sustainable food production and consumption	7	63	147	210	2	7,0	0	0	0	7,0
2.3. Environmental economics	4	36	84	120	2	2,0	2,0	0	0	4,0
<b>Study module No. 3: Bio-resources based engineering</b>	<b>14</b>	<b>126</b>	<b>294</b>	<b>420</b>	<b>2</b>	<b>1,5</b>	<b>0,0</b>	<b>12,5</b>	<b>0</b>	<b>14,0</b>
3.1. Circular economy	7	63	147	210	2	0	0	7,0	0	7,0
3.2. Renewable energy production and use	7	63	147	210	2	1,50	0	5,5	0	7,0
<b>Study module No.4: RTD, innovations and markets of bio-based products</b>	<b>15</b>	<b>135</b>	<b>315</b>	<b>450</b>	<b>3</b>	<b>5,0</b>	<b>3,0</b>	<b>7,0</b>	<b>0</b>	<b>15,0</b>
4.1. Bio-based RTD, innovations and business models	5	45	105	150	3	3,0	0	2,0	0	5,0
4.2. Markets and international trade of bio-based products	5	45	105	150	3	2,0	3,0	0	0	5,0
4.3. Sustainable logistics	5	45	105	150	3	0,0	0	5,0	0	5,0
<b>Study module No.5: Research approaches in the bioeconomy</b>	<b>15</b>	<b>135</b>	<b>315</b>	<b>450</b>	<b>3</b>	<b>11,5</b>	<b>1,0</b>	<b>2,5</b>	<b>0</b>	<b>15,0</b>
5.1. Bioeconomy research design and methods	5	45	105	150	3	4,0	1,0	0	0	5,0
5.2. Bioeconomy data analysis and statistics	5	45	105	150	3	2,5	0	2,5	0	5,0
5.3. Scientific writing and reporting	5	45	105	150	3	5,0	0	0	0	5,0
<b>Master thesis elaboration and defending</b>	<b>30</b>	<b>0</b>	<b>900</b>	<b>900</b>	<b>4</b>	<b>x</b>	<b>x</b>	<b>x</b>	<b>30,0</b>	<b>30,0</b>
<b>Total ECTS (credits) / hours</b>	<b>120</b>	<b>810</b>	<b>2790</b>	<b>3600</b>	<b>x</b>	<b>33</b>	<b>24</b>	<b>33</b>	<b>30</b>	<b>120</b>

*The new curriculum teaching plan and contents were agreed with the rectors of four involved universities and approved by the rector of the Tashkent State Agrarian University on August 27, 2022 (reviewed and approved by the TSAU Scientific Council on August 27, 2022, Protocol No. 1).*