DESCRIPTION OF THE COURSE SYLLABI

ZNTU, UA 23 January, 2019	
TITLE OF THE COURSE	**Code**
MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE	M2.7

Teacher(s)	Department
Coordinating: Sergey Subbotin	**Software Tools**

Study cycle	Level of the curricula	Type of the curricula
MA	**2**	**elective**

Form of delivery	Duration	Language(s)
Theory/lab	**14 weeks**	**Ukr/Eng**

Prerequisites	
Prerequisites: Higher mathematics	**Co-requisites (if necessary):**

ECTS	Total student workload hours	Contact hours	Individual work hours
3	**90**	**28**	**62**

Aim of the course: competences foreseen by the study programme		
Studying of modern intelligent information technologies for decision making automation and machine learning.		
Learning outcomes of the course	**Teaching/learning methods**	**Assessment methods**
Students will get acquainted with modern intelligen information technologies for machine learning and pattern recognition	**Theory**	**tests**
Students will be able to build intelligent models for decision making in biomedical problems	**Theory, labs**	**tests, labs reports**
Students will have hands-on experience of software tools using and development for intelligent data processing and machine learning	**Theory, labs**	**tests, labs reports**
Students will be able to select necessary architecture, method and software tool for intelligen model building on precedents	**Theory, labs**	**tests, labs reports**

Themes	Contact work hours							Time and tasks for individual work	
	Lectures	Consultation	Seminars	Practical work	Laboratory work	Placements	Total contact work	Individual work	Tasks
Module 1. Intelligent systems and machine Learning	**8**				**6**		**14**	**31**	
1.1. Basics of artificial intelligence	2				–		2	11	Reading literature
1.2. Supervised machine learning and pattern recognition	4				4		8	10	Reading literature and preparing labs reports
1.3 Unsupervised machine learning. Cluster analysis	2				2		4	10	Reading literature and preparing labs reports
Module 2. Intelligent knowledge-based systems	**6**				**8**		**14**	**31**	
2.1. Data mining and dimensionality reduction	2				4		6	10	Reading literature and preparing labs reports
2.2. Knowledge based systems	2				4		6	10	Reading literature and preparing labs reports
2.3. Logical inference	2				–		2	11	Reading literature
Is viso	**14**				**14**		**48**	**62**	

Assessment strategy	Weight in %	Deadlines	Assessment criteria
Tests	50	25	Grade A (excellent) - clarity of expression – excellent, confident delivery, practical tasks – full done. Grade B (good) – clarity of expression – good, thoughts and ideas clearly expressed, practical tasks - well done. Grade C (good) - clarity of expression – well-placed, delivery is fluctuating, practical tasks - well done. Grade D (passed) - clarity of expression – poor, delivery is fluctuating, practical tasks done with mistakes. Grade E (fail) - failure in theoretical or practical tasks.
Products and performance assessments	50	25	All labs reports should be passed

Author	Year of issue	Title	No of periodical or volume	Place of printing. Printing house or internet link
Compulsory literature				
Subbotin S.O., Oliinyk A. O.	2014	Intelligent Systems		Zaporizhzhia, ZNTU
Oliinyk A. O., Subbotin S.O.	2011	Intelligent Data Analysis		Zaporizhzhia, ZNTU
Additional literature				
Subbotin S. A. et al.	2012	Intelligen Information Technologies of Design of Automated Systems of Diagnosis and Pattern Recognition		Kharkov, SMIT