Course Program		
Subject name and NEPTUN code: **BASICS OF DIGITAL PHOTOGRAMMETRY, AGEBDPFBNE**		Credits: **2**
Type of education: **full time**	Term: **2023/2024.**	Semester: **1.**
Specialization of the subject: **Alba Regia Technical Faculty BSc**		

Course instructor:	**Dr. habil. Jancsó Tamás**	Instructor:	**Dr. habil. Jancsó Tamás**

Prerequisites:		**none**		
Hours:	Lecture: 0	Tutorial: 0	Lab : 2 h	Consultation: 0
Type of assessment:	**written exam**			

Subject description

Educational goal: In this on-line course students will learn about the basics of digital photogrammetry including the evaluation process of photos with special attention to the orientation procedure including the interior, the relative and the absolute orientation. As a complex task the bundle adjustment, the orthophoto production, the DTM creation and checking is included in the course material. Through practical examples the students learn about the evaluation of images, the aerial triangulation and Digital Monoplotting as well.

The course starts with a short introductory presentation. After this a test must be completed. The theory of each topic is covered by an online html based course. The theory and practice of each topic are supported by an exercise including a program (which has to be installed), a user guide, and a tutorial video. It is strongly recommended to complete all exercises. Each test will include questions not only about the theory but about the practical tasks as well. For helping to plan the learning schedule a table of estimated hours necessary for completion of the main topics is attached to the course.

Competences: He/she acquires knowledge of land surveying and land management professional topics, professional concepts, instruments, measurement, computation, evaluation procedures, basic and theoretical knowledge, GIS and other professional software. He/she will be able to: survey objects, use geodetic and remote sensing data acquisition and evaluation tools, use mapping of earth, air and satellite images, use literature. In his/her conduct: he/she seeks professional, inter-professional cooperation, observes the rules of engineering ethics, observes laws and ethical standards, requires self-education and training. He/she is responsible for: self-interpretation of professional issues, planning and implementation workflow, professional innovation, collaboration and communication with his/her peers.

Thematics:

Topics	Hours
Laboratory work:	
Introduction to digital photogrammetry	2
Introduction to evaluation process	1
Interior orientation	2
Relative orientation	2
Absolute orientation	2
Bundle adjustment	2
DTM creation and checking	5
Orthophoto production	2
Evaluation of images	2
Aerial triangulation	5
Digital Monoplotting	2
Summary test	1

Bibliography	
Required:	Tamas Jancso: Basics of Digital Photogrammetry (E-learning material), Obuda University, EFOP-3.4.3-16-2016-00023, 2019.
	Tamás Jancsó: Photogrammetry, Modular Course Book of Data Acquisition and Integration, Chapter 5, University of West Hungary, Project No: TÁMOP - 4.1.2-08/1/A-2009-0027, 2011.
	Wilfred Linder: Digital Photogrammetry, A Practical Course, Third Edition, Springer-Verlag, ISBN: 978-3-540-92724-2, 2009.
Recommended:	T. Luhmann, S. Robson, S. Kyle and I. Harley: Close Range Photogrammetry, Whittles Publishing, ISBN 1-870325-50-8, 2006.
Subject requirements	
Participation:	The implementation of E-learning curriculum practices and tests are mandatory, measurement and calculation tasks must be performed on-line.
Mid-term assessments:	The course tests were compiled from a database of 135 questions. The full course requires 10 successful tests. The tests usually consist of ten questions. A further condition for the successful completion of the course is the successful completion of the summary test as a written exam, which contains a series of questions composed from the previous questions at random.
Conditions of signing the semester:	- Completing the e-learning course's practical tasks - Successful completion of 10 tests - Successful completion of the summary test as a written exam.
Calculation of course mark:	The result of the summary test.
Conditions at non-attendance and making up:	- It is irrelevant, the e-learning course is on-line.
Type of examination:	On-line summary test as a successful completion of a written exam, consisting of a series of questions randomly drawn from previous questions.
Conditions of offered mark:	- is irrelevant
Possibility of getting the signature during the exam period:	The signature can be replenished once in the first ten days.