Attatchment no. 4

SUBJECT/MODULE SYLLABUS*

1.	Subject/module name Artefacts as the archaeometric information about the past
2.	Discipline archaeology
3.	Lecture language Polish
4.	The entity conducting subject Institute of Archaeology
5.	Subject/module code 22-AR-S2-KSBMZAA
6.	Type of subject/module *(obligatory or optional)* optional
7.	Field of study (specialization)* archaeology
8.	Level of studies *(1st degree*, 2nd degree*, long-cycle master's studies*, name of the Doctoral College*)* 2nd degree
9.	Year of studies *(if applicable*)
10.	Semester *(winter or summer)*
11.	Form of classes and number of hours (including number of hours of online classes*) seminar 15 hours
12.	Initial requirements in terms of knowledge, skills and social competences forthe subject/module Basic knowledge of archeology and the connections between archeology and other fields of science in the field of natural sciences.
13.	Learning objectives for the subject Theoretical knowledge of basic analytical studies performed on archaeological artefacts, carried out in situ and in the laboratory. Additionally, specific results of archaeometric research will be presented and discussed, as well as the impact of various factors on the obtained research results.
14.	1. History of archaeometry 2. X-ray diffraction (XRD) in archaeological research 3. Infrared spectroscopy (FT-IR) and its role in understanding the past 4. Gas chromatography (GC-MS) and application for artifact research

	5. X-ray fluorescence spectrometry (XRF) and its application in archeology 6. Scanning electron microscopy (SEM) in the study of archaeological monuments 7. Methods of imaging monuments (radiography and computed tomography) 8. Methods of mechanical testing of artefacts (microhardness)	
	Assumed learning outcomes	Appropriate directional symbols learning outcomes
	Has structured, in-depth methodological knowledge in various directions of archaeological research.	K_W3
	Has in-depth knowledge of the connections between archeology and scientific disciplines, which are the basis for various research directions developed within them, such as environmental archeology (bioarchaeology), architectural archeology, conservation of archaeological monuments.	K_W5
	Has the ability to integrate knowledge from various disciplines.	K_U4
	Is able to critically analyze various types of data, taking into account modern research methods.	K_U5
	Understands the need for lifelong learning.	K_K1
15.	Required and recommended literature (sources, studies, textbooks, etc.)	
	1. Czasopismo Archaeometry 2. Czasopismo Journal of Archaeological Science 3. Artioli G. 2010. Scientific Methods and Cultural Heritage: An introduction to the application of materials science to archaeometry and conservation science, Oxford: Oxford University Press. 4. Miazga B. 2017. Zabytek archeologiczny jako źródło informacji o przeszłości. Badania specjalistyczne śladów produkcji, użytkowania i depozycji artefaktów, Wrocław: Instytut Archeologii Uniwersytetu Wrocławskiego.	

<table>
<tr><td></td><td>5. Janssens K., van Grieken R. (eds.). 2004. Non-destructive microanalysis of cultural heritage materials, Elsevier.
6. Tylecote R.F. 2002. A history of metallurgy, Boca Raton: CRC Press.
7. Scott D.A., Meyers P. (eds.). 1994. Archaeometry of Pre-Columbian Sites and Artifacts, Los Angeles: The Getty Conservation Institute.
8. Barbacki A. (red.). 2005. Mikroskopia elektronowa, Poznań: Wydawnictwo Politechniki Poznańskiej.
9. Adriaens A. 2005. Non-destructive analysis and testing of museum objects: An overview of 5 years of research, Spectrochimica Acta Part B, Vol. 60, Issue 12, 1503-1516.
10. Szynkowska M.I. 2010. Nowoczesne metody analizy instrumentalnej w badaniu obiektów zabytkowych, [w:] B. Więcek, J. Perkowski (red.), Rola nauki w zachowaniu dziedzictwa kulturowego, Łódź: Politechnika Łódzka.</td></tr>
<tr><td>16.</td><td>Methods of verifying the assumed learning outcomes:

pass (written test); discussion during classes</td></tr>
<tr><td>17.</td><td>Conditions and form of passing individual components of the subject/module:

assessment of preparation for discussion in classes based on recommended literature on the topic; pass (written test); requirements: knowledge of basic theoretical issues regarding archaeometric procedures for archaeological artefacts</td></tr>
<tr><td>18.</td><td>Student/PhD student workload

<table><tr><td>the form of carrying out classes by the student*/doctoral student*</td><td>the number of hours allocated to carry out a given type of classes</td></tr><tr><td>classes (according to the study plan) with the instructor:

seminar:</td><td>

15</td></tr><tr><td>student/doctoral student's own work (including participation in group work), e.g.:

- preparation for classes:

- reading the indicated literature:

- preparation for the final test:</td><td>

10

15

20</td></tr><tr><td>Total number of hours</td><td>60</td></tr><tr><td>Number of ECTS points (if required)</td><td>2</td></tr></table></td></tr>
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(T) – implemented in a traditional way
(O) – implemented online

* remove unnecessary