Annex No. 5

to Ordinance No. 21/2019

**COURSE/MODULE SYLLABUS FOR UNIVERSITY COURSES/PhD STUDIES**

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|  | Course/module name in Polish and English  Prospecting and evaluation of mineral reserves/Poszukiwanie i dokumentowanie zasobów złóż surowców mineralnych | | |
|  | Discipline  Earth and Environmental Science | | |
|  | Language of instruction  English | | |
|  | Teaching unit  Faculty of Earth Science and Environmental Management, Institute of Geological Sciences, Department of Economic Geology | | |
|  | Course/module code  USOS | | |
|  | Type of course/module *(mandatory or optional)*  Mandatory | | |
|  | Field of studies (major, if applicable)  Geology (spec. Applied Geoscience) | | |
|  | Level of higher education *(undergraduate (I cycle), Master’s (II cycle), 5 year uniform Master’s studies)*  Master’s (II cycle) | | |
|  | Year of studies *(if applicable*)  I | | |
|  | Semester *(winter or summer)*  summer | | |
|  | Form of classes and number of hours  Lectures: 24  Lab classes: 24  Teaching methods  Multimedia lecture, preparation of reports. | | |
|  | Name, title/degree of the teacher/instructor  Coordinator: Prof. dr hab. Andrzej Solecki  Lecturer: Prof. dr hab. Andrzej Solecki, Dr Dagmara Tchorz-Trzeciakiewicz, Dr Piotr Wojtulek, Dr Grzegorz Lis  Classes instructor: Prof. dr hab. Andrzej Solecki, Dr Dagmara Tchorz-Trzeciakiewicz, Dr Piotr Wojtulek, Dr Grzegorz Lis | | |
|  | Course/module prerequisites, in terms of knowledge, skills, social competences  Knowledge on the level of Bachelor degree in Geology. | | |
|  | Course objectives  Obtaining he knowledge of methods in prospecting and evaluation of deposits. | | |
|  | Course content  Lectures:  Types of mineral resources.  Geophysical and Remote Sensing Techniques.  Borehole techniques of prospecting.  Mining techniques of prospecting.  Techniques of evaluation of mineral reserves.  Laboratory classes:  Individal reports on lecture topics.  Calculations of reserves. | | |
|  | Intended learning outcomes  P\_W01 Knows the basic types of mineral deposits.  P\_W02 Knows the basic classifications of resources.  P\_W03 Knows the possibilities of using geophysical, geochemical and remote sensing methods for exploration.  P\_U01 Is able to assess the prospectivity of the area for the presence of various types of deposits.  P\_U02 Is able to identify prospective areas for different types of deposits.  P\_U03 Can choose the appropriate methods of exploration for deposits of the type sought.  P\_U04 Can estimate the resources.  P\_K01 Understands the need to adapt the land use to its mineral potential. | Symbols of learning outcomes for particular fields of studies, *e.g. K\_W01\**, *K\_U05,K\_K03*  K2\_W01, K2\_W07,  K2\_W02,  K2\_W03, K2\_W05, K2\_W06, K2\_W08,  K2\_U03,  K2\_U04,  K2\_U01,  K2\_U05,  K2\_K04, K2\_K05, | |
|  | Required and recommended reading *(sources, studies, manuals, etc.)*  Required reading  Computing Reserves of Mineral Deposits: Principles and Conventional Methods, Popoff, Constantine, C., USBM Information Circular 8283, 1966.  Mineral Valuation Methodologies 1994, Australasian Institute of Mining and Metallurgy, 1994  Mining and Petroleum Valuation 1989, Australasian Institute of Mining and Metallurgy, 1989  Mineral Resources, Economics and the Environment, Steven E. Kesler, 1994.  Recommended reading  Hutchison C.S. 1983: Economic Deposits and their tectonic Setting. MacMillan Education. pp. 365  Evans A.M. 1997: An Introduction to Economic Geology and Its Environmental Impact. pp. 396.  Roberts R.G., Sheahan P.A. (1994) - Ore deposit models. Geoscience Canada.  Osika R., 1990: Geology of Poland-Mineral deposits Vol. 6. Warszawa Wydawnictwa Geologiczne. pp314  Kartsev, A.A., Tabarsaranskii, Z.A., Subbota, M.I. and Mogilevskii, G.A., 1959. Geochemical methods of prospecting and exploration for petroleum and natural gas. University of California Press, Berkely, 349 pp.  Handbook of Exploration Geochemistry, Vol. 7 (G.J.S. Govett, Editor) 1999 Elsevier Science B.V. http://www.eti-geochemistry.com/elsevier/.  Remote Sensing Tutorial http://www.fas.org/irp/imint/docs/rst/Sect1/Sect1\_1.html | | |
|  | Assessment methods for the intended learning outcomes:  Lecture: oral or written examination (open test exam). K2\_W01, K2\_W02, K2\_W03, K2\_W05, K2\_W06, K2\_W07, K2\_W08, K2\_U03, K2\_U04.  Lab classes: reports written by student. K2\_U01, K2\_U05, K2\_K04, K2\_K05. | | |
|  | Credit requirements for individual components of the course/module:  Lecture:  - open test exam, 60% scores required for positive result.  Lab class:  - individual reports written by student. | | |
|  | Total student effort | | |
| form of student activities | | number of hours for the implementation of activities |
| classes (according to the plan of studies) with a teacher/instructor:  - lectures: 24  - lab classes: 24 | | 48 |
| student's own work (including group-work) such as:  - consultations 7  - being prepared for classes: 5  - analysis of results: 5  - reading the suggested literature: 5  - writing a class report: 15  - preparing for tests and exam: 15 | | 52 |
| Total number of hours | | 100 |
| Number of ECTS credits | | 4 |