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  Podstawy sedymentologii/Principle of sedimentology | | |
|  | Discipline  Earth and Environmental Science | | |
|  | Language of instruction  English | | |
|  | Teaching unit  Faculty of Earth Science and Environmental Management, Institute of Geological Sciences, Department of Geological Mapping | | |
|  | Course/module code  USOS | | |
|  | Type of course/module *(mandatory or optional)*  optional | | |
|  | Field of studies (major, if applicable)  Geology | | |
|  | Level of higher education *(undergraduate (I cycle), Master’s (II cycle), 5 year uniform Master’s studies)*  undergraduate (I cycle) | | |
|  | Year of studies *(if applicable*)  II | | |
|  | Semester *(winter or summer)*  summer | | |
|  | Form of classes and number of hours  Lectures: 18  Classes: 10  Field classes: 12  Teaching methods  Multimedia lecture, presentation, practical exercises, individual work, preparation of reports | | |
|  | Name, title/degree of the teacher/instructor  Coordinator: dr Szymon Belzyt  Lecturer: dr Szymon Belzyt, dr Aleksander Kowalski  Classes instructor: dr Szymon Belzyt, dr Aleksander Kowalski | | |
|  | Course/module prerequisites, in terms of knowledge, skills, social competences  Knowledge and skills in physical geology, knowledge of mathematics and physics at the high school level | | |
|  | Course objectives  The subject is to familiarize of Students with the most important primary (sedimentational) features of sediments and sedimentary rocks as well as methods of their recognition, description and categorization.  The lectures are aimed at presenting as many textures and structures of sediments as possible, and physical processes of erosion (corrosion), transport and deposition that led to their formation.  Laboratory classes are designed to familiarize students with the methods of process-environmental interpretation of sediments (granulometric analysis, palaeocurrent analysis and cyclicity). | | |
|  | Course content  Lectures:  1. Distribution and classification of sedimentary processes [Erosion/corrosion - Transportation - Deposition (ETD)], the relationship between sedimentary texture and structure; process-and-time related subdivision of textures and sedimentary structures (ETD, primary, secondary); processes of hydraulic transport of the clastics (traction, saltation, suspension);  2. Texture of granular sediments - grain size, grain shape (sphericity, roundness), grain orientation (lineation and imbrication); textural indicators of the time and the direction of transport;  3. Structure of granular sediments - sedimentary surfaces, sedimentary layering, layering units (laminae, bed, strata), the intra-bed and inter-bed structures;  4 Erosional sedimentary structures - erosional surfaces (deflation flat surfaces, parting lineation, escarpment, cliff, microcliff, troughs, scours, potholes, evorsion holes), residuals);  5. Transportation sedimentary structures - surficial (ripples, climbing, lateral bars, inner bars, sand ribbons and bands, obstacle marks); intra-bed (grain gradation, current bedding);  6. Depositional sedimentary structures - lamination/bedding surfaces, adhesion structures, obstacle dunes, travertine, laminites, rhytmites);  7. Deformation structures (load structures, impactites, landslides, slumps, debrites, suspension current deposits (turbidites), convectional structures (diapirs, convolutions), injection structures (clastic dykes, veins, intrusions, diffusion cells, trace fossils).  8. Weathering products and profiles (saprolites, regolites, etchplanes).  Classes:  1. Grain size analysis (sieve and microscopic analyses, process and environmental interpretation of grain sediments);  2. Palaeocurrent and palaeotransport analysis (rose diagrams, vector mean, paleoslope);  3. Cyclicity of deposition (Markov Chains);  4. Sedimentary profile.  Field classes:  1. Field description and profiling of sedimentary rocks;  2. Practical recognition of textural and structural features of sediments and sedimentary rocks;  3. Recognition and interpretation of paleo-flow direction indicators;  4. Recognition of the "way-up" indicators;  4. Recognition and interpretation of biogenic and deformation structures;  5. Elements of regional geology of the Sudetes in the context of the paleogeographic evolution of the area. | | |
|  | Intended learning outcomes  W\_1 The student knows the physical processes of sedimentation.  W\_2 The student knows the terminology of sediments, textures and structures as well as the names of processes and research methods in the field of sedimentology  W\_3. Knows the history of sedimentological research, the most important stages of development of this branch of geology, and in particular the contribution of Polish researchers to the present state of knowledge about sedimentation and sedimentation processes.  U\_1 Has the ability to use selected statistical methods in practice (statistical moments, moving average, vector operators, Markov chains).  U\_2 The student knows the basic terminology in English. | Symbols of learning outcomes for particular fields of studies:  K1\_W01, K1\_W02    K1\_W03, K1\_W04    K1\_W05, K1\_U11  K1\_U01, K1\_U03, K1\_U04, K1\_U05, K1\_U06, K1\_U09, K1\_U13  K1\_U15 | |
|  | Required and recommended reading *(sources, studies, manuals, etc.)*  Required reading  Nichols, G., 1999. Sedimentology & Stratigraphy. Blackwell Science, 356 pp.  Tucker, M.E., 2000. Sedimentary petrology: An introduction to the Origin of Sedimentary Rocks. Blackwell Science, 260 pp.  Recommended reading  Reading, H.G., [Ed.], 1986. Sedimentary Environments and Facies. Blackwell Science, 616 pp. | | |
|  | Assessment methods for the intended learning outcomes:  - exam after passing the exercises: K1\_W01, K1\_W02, K1\_W03, K1\_W04, K1\_W05, K1\_U11;  - pass on the basis of reports: K1\_W01, K1\_W02, K1\_W03, K1\_W04, K1\_W05, K1\_U11, K1\_U01, K1\_U03, K1\_U04, K1\_U05, K1\_U06, K1\_U09, K1\_U13, K1\_U15. | | |
|  | Credit requirements for individual components of the course/module:  - lectures: exam - obtaining above 50% points  - laboratory classes: pass on the basis of reports | | |
|  | 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: 18  - classes: 12  - field classes: 10  - consultation: 2  - exam: 2 | | 44 |
| student's own work (including group-work) such as:  - being prepared for classes: 6  - reading the suggested literature: 6  - preparing results: 10  - preparing papers/presentations/projects:  - writing a class report: 6  - preparing for tests and exam: 8 | | 36 |
| Total number of hours | | 80 |
| Number of ECTS credits | | 3 |