

COURSE/MODULE SYLLABUS FOR UNIVERSITY COURSES/PhD STUDIES

1.	Course/module name in Polish and English Geologia strukturalna/Principles of structural geology
2.	Discipline Earth and Environmental Science
3.	Language of instruction English
4.	Teaching unit Faculty of Earth Science and Environmental Management, Institute of Geological Sciences
5.	Course/module code USOS
6.	Type of course/module (<i>mandatory or optional</i>) optional
7.	Field of studies (major, if applicable) Geology
8.	Level of higher education (<i>undergraduate (I cycle), Master's (II cycle), 5 year uniform Master's studies</i>) undergraduate (I cycle)
9.	Year of studies (<i>if applicable</i>) II
10.	Semester (<i>winter or summer</i>) summer
11.	Form of classes and number of hours Lectures: 24 Classes: 24 Teaching methods: presentation, discussion, practical exercises, individual work.
12.	Name, title/degree of the teacher/instructor Coordinator: prof. dr hab. Paweł Aleksandrowski Lecturer: prof. dr hab. Paweł Aleksandrowski Classes instructor: dr Artur Sobczyk
13.	Course/module prerequisites, in terms of knowledge, skills, social competences Knowledge and skills covering the content of lectures classes and/or field classes of physical geology, physics and mathematics taught at the 1st years' level.
14.	Course objectives The course acquaints students with basic notions, research methods and current progress achieved in the domain of structural geology. It is also intended to prepare students to

	undertake self-studies in this domain and to teach them practical application of the acquired knowledge and skills in various situations during future professional activities.	
15.	<p>Course content</p> <p>Lectures:</p> <p>Definitions, tasks and methods of structural geology and tectonics. Scope of interests, position among geological sciences; review of most important and international literature: manuals and periodicals. Notion and methods of structural analysis. Physical basis of structural geology and tectonics. Stress and strain - basic definitions, formulas and relationships. Elements of rheology and rock mechanics. Present-day in situ stresses in rock massifs - methods of measurements and interpretation. Regional patterns of in situ stresses in earth's crust and their relationships with regional and global tectonics. Tectonic regimes. Brittle tectonic structures - their morphology and origin. Joints and faults, fault-related fractures, typical joint patterns. Brittle shear zones. Thermal jointing. Classification, morphology and origin of faults. Linked fault systems produced in thrusting, strike-slip and normal faulting regimes.</p> <p>Classes:</p> <p>Methods of spatial analysis of orientation aspects of tectonic structures using Lambert-Schmidt stereonet. Basic methods of structural analysis applied to selected simple tectonic structures originated in both brittle and ductile regimes.</p>	
16.	Intended learning outcomes	<p>Symbols of learning outcomes for particular fields of studies:</p> <p>W_1 Knows the basic terminology and concepts used in structural geology K1_W03, K1_W04, K1_W07</p> <p>W_2 Is aware of physical foundations and mechanisms of tectonic deformation in various conditions of pressure and temperature K1_W03, K1_W04, K1_W07</p> <p>W_3 Knows a wide range of tectonic structures and of the genetic processes in which they have formed K1_W03, K1_W04, K1_W07</p> <p>U_1 Is able to classify, recognize and describe typical tectonic structures based on macroscopic observation, geological map analysis and remote sensing data K1_U01, K1_U04, K1_U06</p> <p>U_2 Is prepared to undertake orientation and dimension measurements of particular types of tectonic structures in outcrops or on the basis of geological maps or remote sensing data and is able to analyse those measurements and plot them on maps, cross-sections or stereographic projection. He/she is able to pose and test working hypotheses concerning the origin and evolution of tectonic structures K1_U01, K1_U04, K1_U06</p> <p>K_1 Is able to critically consider the structural geological information provided. Is aware of the necessity to broaden and K1_K05, K1_K06</p>

	<p>deepen his/her knowledge of structural geology in case it should be useful in professional activity</p> <p>K_2 Shows responsible attitude with regard to the equipment he/she borrowed and to the teaching rooms.</p>	K1_K04
17.	<p>Required and recommended reading (<i>sources, studies, manuals, etc.</i>)</p> <p>Required reading: Van der Pluijm A. & Marshak S., 2004. Earth Structure, 2nd ed., W.W. Norton & Co, New York.</p> <p>Recommended reading: Fossen H., 2016, Structural Geology, 2nd Ed, Cambridge University Press. Twiss R.J. & Moores E.M., 2006, Structural Geology, 2nd Ed., Freeman & Co., New York Price N.J. & Cosgrove J.W, 1990, Analysis of Geological Structures, Cambridge University Press. Ragan D.M., 2009, Structural Geology - an introduction to geometrical techniques, 4th Ed, Cambridge University Press. Groshong S.H., 2006. 3-D Structural Geology. Springer, Berlin - Heidelberg.</p>	
18.	<p>Assessment methods for the intended learning outcomes:</p> <ul style="list-style-type: none"> - exam (written): K1_W03, K1_W04, K1_W07, - control tests (written): K1_W03, K1_W04, K1_W07, K1_U01, K1_U04, K1_U06, K1_K04, K1_K05, K1_K06. 	
19.	<p>Credit requirements for individual components of the course/module:</p> <p>Lectures: Exam (written) – after completing the classes’ tests. Positive result – after aquisition of minimum 60% score.</p> <p>Classes: 3 tests (including practical skills’ evaluation). Positive result – after aquisition of minimum 60% score.</p> <p>Percentages and weights taken into account for the final grade: exam result – 60%; classes result – 40%.</p> <p>Possible number of absences - in accordance with the study regulations.</p>	
20.	Total student effort	
	form of student activities	number of hours for the implementation of activities
	<p>classes (according to the plan of studies) with a teacher/instructor:</p> <ul style="list-style-type: none"> - lectures: 24 - classes: 24 - consultations: 2 - exam: 2 	52
	<p>student's own work (including group-work):</p> <ul style="list-style-type: none"> - preparing for classes: 20 - reading suggested literature: 20 - preparing for exam: 10 	50
	Total number of hours	102
	Number of ECTS credits	4

