



Name of subject	Elements of exact sciences in art
Entity running the module	The Faculty of Graphic Arts and Media Art, Department of Media Art
Entity for which the module has been prepared	-
Module type	Basic module, compulsory module in the field of Media Art
Year of study/ semester; mode of attendance	Year 1, semester 2 First level full-time studies
ECTS credits	2
Module organizer	dr Jakub Jernajczyk
Academic aims	Classes within the module: Elements of exact sciences in art constitute a part of training in the field of Media Art on a basic level. The academic aim is to increase the students' knowledge of selected aspects of exact sciences necessary for their free use of digital media in the creative process.
Module prerequisites	-
Learning outcomes with respect to:	
- knowledge	Students acquire knowledge in the area of Media Art with respect to selected terms and theories of exact sciences.
- skills	Students acquire skills in the area of Media Art concerning the synthetic expression and presentation of scientific problems; students also become familiar with the possibility of finding inspiration for their own creative work in scientific aspects.
- personal and social competence	Students acquire competences in the area of Media Art concerning a humanistic reflection on intellectual creativity based on mathematics, logic, philosophy and natural sciences.
Module content	Lectures introduce students to selected aspects of mathematics, philosophy and natural sciences essential from the perspective of digital media and Media Art. Sample topics: 1) Ancient geometry and harmony as an ideal of beauty, 2) Binary notation and other positional notations, 3) Infinity, 4) Continuous and discrete systems, 5) Concepts of time and space, 6) Non-Euclidean geometries, 7) Theory of Relativity, 8) Fundamental problems of cosmology, 9) Randomness, determinism, chaos, fractals. The lectures modelled on popular scientific studies do not require any preparation in the area of exact sciences or philosophy on the part of the students. By the end of a semester, students execute their own projects inspired by or based on a selected scientific aspect.
Module form and number of module hours	Lecture + consultations. On their own, students execute individual projects which they discuss with the module organizer in class. Correction involves the creative, aesthetic and technical aspects of the projects. Number of module hours: 30 hours/semester
Assessment methods and criteria	50% student's involvement: attendance and active participation in classes 50% the semester project: substantive value - the degree of exploration thoroughness / originality / the degree of professionalism.
Assessment type	Graded pass
Literature	1. Joanne Baker - 50 teorii fizyki, które powinieneś znać. 2. Michał Heller - Podglądanie Wszechświata. 3. Zbigniew Rybczyński - Traktat o obrazie. Supplementary literature: B. Russell - Problemy filozofii, G. Ifrah - Historia Powszechna Cyfr, M. C. Ghyka - Złota liczba, B. Dupre - 50 teorii filozofii, które powinieneś znać, P. Levinson - Miękkie ostrze. Historia i przyszłość rewolucji informacyjnej.
Notes	Necessary equipment: computer, multimedia projector
Language of instruction	Polish language