Name of subject	Multimedia Programming
Entity running the module	Department of Media Art / The Faculty of Graphic Arts and Media Art
Entity for which the module has been prepared	
Module type	Basic module, compulsory module in the field of Media Art, speciality: Photography
Year of study/ semester; mode of attendance	Year 1 - semester 1 Second level full-time studies
ECTS credits	3
Module organizer	dr Jakub Jernajczyk
Academic aims	The academic aim is to expand the students' creative techniques by means of skills of conscious algorithm designing, independent coding in a selected programming environment and creating on-screen applications and interactive installations.
Module prerequisites	- Basic computer skills - Basic knowledge of interface and the Adobe Flash animation tools
Learning outcomes with respect to:	
– knowledge	Students become familiar with basic terms of programming, the principles of algorithm creation and structural and object-oriented programming; they also become familiar with a selected programming environment and its intended use, possibilities and limitations; they learn the ActionScript language.
– skills	Students acquire skills in the area of Media Art concerning programming on a basic or intermediate level, in a selected language of programming (recommended language: ActionScript) and the preparation of multimedia material for programming processing.
– personal and social competence	Students acquire competences in the area of Media Art concerning the conscious use of computers as tools of creative work, communicating and cooperating with programmers; algorithmization skills.
Module content	1) Practising basic programming intuition in *Graphical Programming Language.* 2) Short presentation of the history of algorithm and computers. 3) Practice in algorithm creation: algorithmization of daily activities, creating block diagrams, classic numerical tasks (e.g. NWD). 4) Structural and object-oriented programming - presentation of differences, advantages and disadvantages. 5) Presentation of various programming languages and environments with respect to their intended use, possibilities and limitations (with special emphasis on the best environments for moving images and sound). 6) Presentation of communication interfaces: keyboard, mouse, touchscreen, microphone, camera, sensors (motion, light, pressure, distance sensors ...). 7) Elementary programming course in ActionScript language (variables, conditional instructions, loops, functions, event handling, dynamic generation of graphic primitives, image, sound and video handling, advanced interaction methods: microphone, camera). 8) Presentation of selected aspects of the theory of algorithms and data structures (trees, stacks, graphs, divide and conquer technique, recurrence, sorting). 9) Possibility of consultations in other programming languages (C++, Processing, JavaScript).
Module form and number of module hours	Lectures and classes in a computer laboratory. Students execute their own projects which they consult with the module operators in class. Correction comprises the conceptual, aesthetic and technical aspects of the projects. Number of module hours: Semester 1 /45 hours
Assessment methods and criteria	50 % student's involvement: task performance/ active participation in class; 50 % semester project: originality/ creativity/ level of professional execution (in the visual and programming apsects)
Assessment type	Graded pass
Literature	1. Aktualny podręcznik z serii: ActionScript* dla Adobe Flash* - OFICJALNY PODRĘCZNIK. 2. Podręczniki do nauki zawodu technik informatyk wyd. Helion: Adam Majczak - Programowanie strukturalne i obiektowe, Tomasz Rudny - Multimedia i grafika komputerowa. Supplementary literature: A. V. Aho - Algorytmy i struktury danych; T. H. Cormen - Wprowadzenie do algorytmów; Jerzy Grębosz - Symfonia C++; Georges Ifrah - Historia powszechna cyfr; anglojęzyczne podręczniki opisujące język Processing.
Notes	Requirements: computer laboratory, multimedia projector, Adobe Flash CS4 or a newer version.
Language of instruction	Polish language/ English language possible