Computer Science

Please note: this syllabus is an example for students aged 16-17 years old. This course is available for 13-15, 16-17 and 18-24 year old students, and adjustments will be made to course content according to student age group.

Course introduction

Course objectives

- To understand how to create and control sprites using object-oriented programing techniques
- To appreciate the impact of game mechanics on programming and how they are implemented to make a platform run well
- To understand the integration of sound, background graphics, smooth scrolling effects and velocities
- To understand the application of these transferable skills to other concepts and ideas

This course would serve as an excellent introduction to both game creation in Python and object-oriented programming in Python. It is expected that students will already be at least intermediate Python programmers who are familiar with lists, file handling and subroutines as well as the difference between while, and for loops.

Each topic will include a mixture of didactic or learning-assisted content (video, text, powerpoint) and self-directed learning activities to complete.

Topic titles

1. How to install PyGame and the basics to creating a design for a game.
2. Sprites and the main event loop including creating your own sprites, importing graphics and making the sprites move
3. How to add game mechanics
4. Enhancing your game with the final touches, including sound and scoring

Independent project work

This piece of work will combine all of the content covered in the course. Information covered during independent study, webinars and tutorials will contribute to this and has been designed to help students achieve solid theoretical background knowledge coupled with data analysis and presentation skills.

Students will be creating a game that they have designed. Guidance will be given but any 2D game can be created. There will be at least one exemplar game over the course of the project which can also be developed. Students will use examples to help decide on personal direction for the creation of their source graphics, sound, layout and mechanics.