

Courses for 2 year program Game Art (alphabetical order)

- Advanced Game Art (3 weeks)
 - Animation (3 weeks)
 - Character Art (4 weeks)
 - Concept Art (2 weeks)
 - Environment Art (4 weeks)
 - Degree project Game development (10 weeks)
 - FX for games (2 weeks)
 - Game Art (7 weeks)
 - Game Art fundamentals (2 weeks)
 - Game Project 1 (2 weeks)
 - Game Project 2 (4 weeks)
 - Game Project 3 (7 weeks)
 - Internship (LiA) (30 weeks)
 - Lighting and Rendering (2 weeks)
 - Market analysis, Industry Knowledge and Portfolio (3 weeks)
 - Project methodology in game development (2 weeks)
 - Tech Art (3 weeks)
 - Texturing (3 weeks)
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COURSE DESCRIPTIONS

COURSE Advanced Game Art (3 weeks)

Purpose and goal:

The purpose of this course is to immerse yourself in an advanced area of game graphics and practice iterating this at high speed.

Knowledge:

In-depth knowledge in an advanced area of game graphics for modern game development.

- Understand how to create high-quality graphics in an efficient and correct way under time pressure.

Skills:

- Ability to analyze, create and critically choose the right methods and relevant graphics for a game production under time pressure.

Competencies:

The student has the competence to understand and be able to quickly produce advanced and adapted game graphics at a high level under time pressure.

COURSE Animation (3 weeks)

Purpose and goal:

The purpose is to teach the students animation intended for game production. The goal is for the students to animate a number of different game objects.

Knowledge:

- The understanding of how a typical animation pipeline in game production is implemented
- Understanding of how to handle motion capture
- Understand which tools can influence and optimize animation for a game
- Understand the principles of good animation

Skills:

- Ability to animate objects in a modern graphics tool such as Maya and Motionbuilder
- Implement animations in a modern game engine
- Be able to handle MOCAP technology suitable for game production

Competencies:

students gain the skills to create animations with tools such as Maya and Motionbuilder, as well as in modern game engines such as Unreal Engine 4 and Unity.

COURSE Character Art (4 weeks)**Purpose and goal:**

Students should understand the professionally relevant pipeline and standard in the creation of characters and creatures. The goal is to use sculpting tools to create an optional well-executed character in 3D.

Knowledge:

- Understand sculpting pipeline in a game production - Understand how to produce characters through sculpting tools such as Zbrush
- Understand anatomy and shape
- Understand animation-friendly topology

Skills:

- Produce high quality characters in 3D
- Optimize 3D sculptures from sculpting tools with relevant modeling tools such as Maya and a modern game engine such as Unreal Enging or Unity.

Competencies:

Students gain the skills to produce and virtually sculpt a character for use in game production.

COURSE Concept Art (2 weeks)**Purpose and goal:**

The purpose of this course is to gain understanding and practice conceptualization of different parts of a game production. The goal is to create a basis for various processes and elements that can be used as a template for in-depth production.

Knowledge:

- Understand how to conceptualize for different components and phases of a game production
- Understand how to optimize different work processes within game development
- Understand the work needs of different game developers
- Understand matrices and graphical tools to support game developers

Skills:

- Conceptualize in game development
- Time-efficiently visualize ideas, thoughts and visions for a game production
- Create matrices and graphical tools to support game developers

Competencies:

The students gain the skills to understand different game developers work needs and how to streamline a game development team through visual communication and concept development.

COURSE Environment Art (4 weeks)**Purpose and goal:**

The purpose is to give students an understanding of creating optimized environments and understanding a larger game production. The goal is to create an optimized, well-thought-out and playable environment.

Knowledge:

- Advanced knowledge of how a game engine works - Knowledge of how to illuminate a specific environment
- Knowledge of how the technical side of environmental creation works e.g. gravity, collisions, simple visual scripting etc.

Skills:

- Ability to work with modular methods to be able to divide a large environment into smaller pieces of the puzzle
- Ability to work with material editor in Unreal Engine and Unity
- Ability to create a complete environment with relevant tools such as Maya

Competencies:

The student must have the competence to in an optimized way develop and produce a playable environment for a modern game engine.

COURSE Degree project Game development (10 weeks)**Purpose and goal:**

The degree project gives the students an in-depth study of a self-chosen area in game development and game programming, with the guidance of a subject expert from the game industry. The goal is, with the support of course leaders, to design a problem definition in the form of a simulated assignment in a self-chosen specialization area, or together with a company to identify a sharp assignment that leads to the same specialization.

Knowledge:

- Relate their knowledge and skills to a current area of specialization
- Understand a specialized area in game development and game programming
- Understand a specialized role as a game developer within the computer game industry

Skills:

- Select, plan and structure an in-depth work on assignments in game development
- Produce an advanced self-selected part of modern game development

- To report in an occupationally relevant way in-depth work in an area within game development and graphics.

Competencies:

The students are given the competence to independently choose, plan and immerse themselves in an area specialized for the gaming industry. They gain the competence to structure their own project and learn from experts to produce an advanced part of game development.

COURSE FX for games (2 weeks)

Purpose and goal:

The purpose of this course is to create an understanding of a pre-production of game graphics with particles and effects in game production. The goal is to create a number of effects.

Knowledge:

- Understand how FX and particles work in game engines such as Unreal Engine 4 or Unity
- Understand how to work effectively with materials for effects to game
- Understand how to optimize particles and effects
- Gain insight into simulation of effects in modern VFX tools

Skills:

- Be able to create and manage VFX work in modern graphics and game tools.
- Develop effective effects for a game production

Competencies:

The students are given the skills to create optimized effects relevant in game productions in game teams.

COURSE Game Art (7 weeks)

Purpose and goal:

The purpose of this course is to teach students how to handle modern graphics tools and produce good game graphics. Part of the purpose of this course is to teach students to create 3D graphics for real-time rendering and implement this in a game engine. The goal is to create a number of models in a modern graphics tool to gain a good understanding and skill in producing graphics in a game production. An additional goal is for the students to get an overview of the entire process of creating game graphics for a game production.

Knowledge:

- Understand how to create 2D and 3D models
- Understand restrictions with real-time graphics
- Gain insight into today's game development in a gaming company
- Get an overview of different methods of producing graphic content

Skills:

- Produce 3D graphics for a game production
- Be able to reflect on different working methods regarding production 2D and 3D graphics
- Create optimized graphics and implement this in a game engine

Competencies:

The students gain competence in understanding different gaming companies needs and working methods, as well as skills to produce game graphics effectively.

COURSE Game Art fundamentals (2 weeks)**Purpose and goal:**

The aim is to gain a better understanding and ability for composition and color theory adapted for game graphics in modern game development. The course introduces students to industry-relevant methods in game graphics and design for game development. The purpose is to create an understanding of the gaming companies' needs regarding game graphics and design. The goal is for students to learn industry-specific concepts and be able to handle 2D graphics in accordance with modern practical game production. The goal is to go through selected and basic teachings and practice these on modern game graphics linked to game development.

Knowledge:

- Design theory / language form and color theory.
- Visual communication, narrative and context.
- Environments, characters and moods
- Terminology in 2D graphics linked to computer game production
- The need for 2D graphics in the computer game industry
- The understanding of how to work with teams of game designers, game programmers and other game artists.

Skills:

- Analysis and understanding of style and design language
- Be able to handle image shapes and have an understanding of 2D graphics in games
- Conceptualize a game production with 2D graphics.

Competencies:

Manage 2D graphics and design for modern game graphics, as well as understand quality and for game production, linked to current needs in the computer game industry.

COURSE Game Project 1 (2 weeks)**Purpose and goal:**

Game Project 1 is a shorter, less extensive and less controlled game project that prepares for longer, more complex and more extensive game productions in future game projects. The overall purpose is through "Learning by Doing, Learning by Reflection" give students an insight into how dedicated game production works to both the frame goals and develop methods. By attaching great importance to the reflection phase, good preparation is created for future game projects. The goal of the project is to develop a gaming product in a modern gaming engine. The production is carried out in game teams with students from parallel game programs and feedback is given by the game industry's senior developers and project managers.

Knowledge:

- Knowledge of the work process in a game project during a limited project period
- Knowledge of other team roles in a game development project
- Knowledge of planning and implementation of a game project

Skills:

- Produce and communicate 3D graphics in a group of game developers
- Develop a gaming product in a modern gaming engine.
- Reflect on the project's strengths and weaknesses for future game projects

Competencies:

Understand and be able to apply 3D knowledge and skills in an appropriate way in the right parts of the process in a development team working in a modern game engine in a modern game project.

COURSE Game Project 2 (4 weeks)

Game Project 2 game project (4weeks) is based on knowledge, skills and insights from planning, implementation and reflection of project 1. The students deepen their skills regarding game production in a modern game engine. The project form simulates commercial game projects that exist in the gaming industry, current gaming teams, technicians and development environments. The students are connected with other students in the parallel game educations at Futuregames, to work in the professional roles they are trained for. The project is carried out in collaboration with the gaming companies, where the gaming companies 'senior developers provide feedback to the students and assess the projects' development process and results. A modern industry-relevant game engine is used as a development environment. The goal is to create a functional gaming product that maintains professional quality.

Knowledge:

- In-depth knowledge of game productions and game projects in one modern game engine
- Knowledge of the work process in a game project with a larger work group during a limited project period with a given deadline.
 - Knowledge of planning and preparation with clear goals in a comprehensive game project
 - Experience of professional feedback and how this is used to improve game production, collaboration in the team and develop your own learning

Skills:

- Game development in game teams that work in a modern game engine
- Planning and preparation in projects for game development
- Professionally work as 3D graphics in a group of game developers
- Communicate efficiently and professionally in a game development team
- Apply relevant project methods in game projects - Absorb and use feedback for progress

Competencies:

- Ability to produce 3D graphics in a game team in a modern gaming platform's development mile

COURSE Game Project 3 (7 weeks)

Purpose and goal:

Game Project 3 is based on knowledge and skills from previous courses and game projects, which prepares students for a longer, more comprehensive and more complex game project. The project is carried out in an alternative modern game engine, for the purpose of learning

the students another one of the most accepted and use the open-source tools for game development. The goal of introducing a new game engine is for students to be able to apply their knowledge and skills to different tools (game engines) in the future.

Agile project methodology, adapted for game development projects, is applied in Game Project 3, as an extension of the course for game project methodology held before Game Project 3 starts. Game Project 3 is a comprehensive game project that simulates the gaming industry's commercial projects for seven weeks. The industry participates actively throughout the project. 3D students are connected with students in the parallel game educations at Futuregames, to work in the professional role you are trained for. Senior game developers from the gaming industry continuously provide feedback to the students and assess the projects' development process and results. The goal is to create a functional gaming product that maintains professional quality and can be used in its own portfolio, while the students gain experience of a more comprehensive gaming project. All students have the opportunity to launch the productions in Game Project 2 and 3 on well-known platforms such as steam and ichio.io, in order to learn the launch process and strengthen business acumen and entrepreneurship.

Knowledge:

- Learn to develop games in game teams in a modern alternative industry-relevant game engine

Skills:

- Understand agile project methodology adapted for game development projects
- Understand longer, more advanced and more complex game development projects
- Learn to produce fully at the professional gaming industry level

Competencies:

- Ability to produce 3D graphics in a game team in a modern gaming platform's development compass.

COURSE Internship (LiA) (30 weeks)

Purpose and goal:

The LIA internship aims to introduce and strengthen the students in their new professional role in the gaming industry, while the student continues his learning under supervision in a sharp context at a self-chosen workplace. The goal of LIA is an employment with the LIA company or with one of its partners. Thus, another purpose of LIA is for the student to strengthen and broaden his network in the gaming industry.

Knowledge:

- The LIA company, its partners, suppliers and other players in the industry
- Industry structure, growth, trends and opportunities / threats
- The tasks and areas of responsibility of one's own professional role
- Other related professional roles and competencies
- The team's structure and key people
- Customers, sponsors, financiers and other stakeholders
- Trends, pace of development and new technologies

Skills:

- Put and deepen their knowledge from the education in practice
- Produce program structure as part of game development
- Act and produce as a key competence in a gaming team

- Plan and produce syntax for games
- Create functions based on the customer's / customer's and user's needs and wishes
- Adapt and set program structure to existing game layout and interface
- Participation in the production of games in a real workplace
- Analysis of own work. The analysis is described in an interim report and a final report, respectively

Competencies:

Through their LIA competence, the students get to work in their developing game developer role in sharp game projects. They get the opportunity to specialize in the valuable roles a 3D graphic artist can work in after graduation.

COURSE Lighting and rendering (2 weeks)

Purpose and goal:

The course aims to create a good understanding of how to illuminate elements in gaming environments in a professional and modern way. The goal is for the students, with the support of laboratory work, to render different environments and moods for user experiences.

Knowledge:

- Understand the work process for the implementation of light and rendering in modern game engines
- Understanding of dynamic versus static lighting
- Understand how to prepare models for lighting - Advanced knowledge of lightmapping

Skills:

- Ability to convey different moods with the help of different lighting
- Ability to optimize light in game productions for maximum performance
- Ability to present models in an aesthetically pleasing way

Competencies:

Students gain competence to understand and create good lighting in modern game productions.

COURSE Market analysis, industry knowledge and portfolio (3 weeks)

Purpose and goal:

The purpose of this course is to create an understanding of the outside world for Sweden's gaming companies and at the same time map the gaming companies' current competence needs. The goal is to study and analyze a large number of gaming companies in Sweden and abroad, and to visit a number of gaming companies. The goal is also to learn to relate their own competence to the gaming companies' needs. Students learn to write custom CVs and create digital portfolios. The students also gain insight into entrepreneurship and self-employment, which is an important part of the gaming industry.

Knowledge:

- Knowledge of the Swedish and international computer game industry
- Knowledge of Sweden's computer game companies
- Knowledge of entrepreneurship in the gaming industry
- Understanding of one's own career choice

Skills:

- Create industry analyzes
- Create CV
- Create a customized and digital portfolio intended for computer game companies

Competencies:

Competence to map the Swedish computer game industry and relate the gaming companies to their own competence and own career choices. Competence to create professional presentation material in the form of CV and digital portfolio.

COURSE Project methodology in game development (2 weeks)**Purpose and goal:**

The purpose is to teach students industry-relevant project methodology to implement a gaming project in the computer gaming industry. The aim of the course is for students to be able to apply agile project methods in the education's major game projects.

Knowledge:

- Knowledge of agile working methods such as SCRUM
- Insight into industry-relevant project tools such as Hansoft, Miro

Competencies:

The students are given the skills to create realistic game graphics and optimize 3D in a modern graphics tool, as well as the ability to import this graphics into a game engine.

COURSE Tech Art (3 weeks)**Purpose and goal:**

The purpose is to teach students to prepare and optimize game graphics. The goal is for students to learn to optimize an alternative production of, for example, a character, vehicle, environment, animation, effect or prop.

Knowledge:

- Understand how to rig 3D graphics for games
- Understand anatomical deformation
- Understand the technical process in Maya
- Understand how to optimize your game graphics in the most appropriate way

Skills:

- Ability to rig a model and prepare it for animation
- Ability to optimize and export game graphics to a modern game engine
- Ability to analyze and provide insight into how to automate these processes

Competencies:

The students gain competence to technically handle game graphics in a game production and optimize its graphics according to game engine and production needs.

COURSE Texturing (3 weeks)**Purpose and goal:**

The purpose of this course is to understand game graphics for games and based on this create good textures for 3D models and other game graphics. The goal is for students to produce a number of different textures using different methods.

Knowledge:

- Understand how to produce good data and patterns for game graphics
- Be able to interpret how 2D graphics are suitable as textures for different surfaces - Be able to apply methods to produce optimized graphics for texturing
- Have a good understanding of different material properties

Skills:

- Produce textures and patterns for game graphics
- Design textures for game graphics in a game production
- Create materials adapted for physical rendering (PBR)

Competencies:

The students must have the competence to understand and manage game graphics to create and implement good texturing for games.