Game-Related Studies in Finland

Report for Pelikan project

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Contents

1   Introduction

There are various higher education institutions in Finland that offer their students game studies in order to cultivate study credits. Some of these are projects or separate courses, complementary to the student's main degree programme curriculum. However, there are also several degree programmes that fully commit to game development and other forms of game studies. This report was made based on the available information about the programmes' curriculums. The objective was to compile the information into a compact piece that will give an idea of what game development-related subjects each institution offers, and in what form.

2   Institutions

2.1   Aalto University

Aalto University offers game studies through two different degree programmes. The Game Design and Development (Arts and Media) degree programme focuses on teaching game development through the artistic lens, having a lot of its core structure focus on subjects such as art, media, concepting, writing, game design, game analysis, game psychology, game culture, and AI in art. The competences are acquired through multiple game projects, and individual courses for the aforementioned subjects. The programme also offers chances in gaining competences through creative avenues such as essay writing.

The other programme in game studies at Aalto University is Game Design and Development (Computer, Communication and Information Sciences). It aims to give students competences as programmer-designers. This means that the study methodology is focused around having a vast understanding of both the design and technical areas of game development, which enables accurate realisation and implementation of design ideas. These competences are gained through individual courses, and game projects done in tandem with the art and media side. The subjects of the individual courses offered include game design, game analysis, software development, machine learning, game projects, narrative, 3D animation, sound design, programming, VR, and cloud technology.

Summary: There are two game studies programmes at Aalto University, each offering a different variety of competences on different sides of game development. Arts and media is focused around art, media, concepting, writing, game design, game analysis, game psychology, game culture, and AI in art. Computer, Communication and Information Sciences is focused around game design, game analysis, software development, machine learning, game projects, narrative, 3D animation, sound design, programming, VR, and cloud technology. Both programmes accomplish their teaching methods through multiple game projects.

Curricula:

https://www.aalto.fi/en/programmes/masters-programme-in-art-and-media/curriculum-2022-2024

https://www.aalto.fi/en/programmes/masters-programme-in-computer-communication-and-information-sciences/curriculum-2022-2024

2.2   Tampere University

Tampere University offers a degree programme in Game Studies that focuses on the theoretical and research-based/academic side of video games, giving its students competences in examining, observing, and comprehending the advancements in this area of study, all the while promoting a more practical engagement and a hands-on approach as an authority in games and play. These competences are accomplished through courses that include game studies, game study methodologies, game culture, and game industry analysis.

The curriculum also offers courses in some very niche subjects, such as Japanese video games and playfulness and wellbeing.

Summary: Tampere University offers a Game Studies degree emphasizing theoretical and academic aspects of games. The program gives its students competences in analyzing and comprehending advancements in the field, while promoting practical engagement. Courses cover game

studies, methodologies, culture, and industry analysis, with multiple niche subjects added in too.

Curricula: https://www.tuni.fi/en/students-guide/curriculum/degree-programmes/otm-2bd4a666-537c-4a3d-8e29-98a8e6039d64?

2.3 LUT University

In LUT University, it's possible to complete an independent game development project course in the Digital Systems and Service Development degree programme. Additionally, the programme offers courses useful in game development, such as UX, software engineering, and cloud technology.

Summary: In LUT University, it's possible to complete a solo game development project, and take courses on other subjects relatively useful in game development.

Curricula: https://forms.lut.fi/opinto-opas/Tutkinto.aspx?id=otm-6997a60a-2942-48f7-83c1-da69d2e17ee7&period=lut-curriculum-period-2023-2024&lang=en-US

Course: https://fitech.io/en/studies/game-development-project/

2.4 South-Eastern Finland University of Applied Sciences, XAMK

XAMK offers a degree programme in Culture and Arts/Game Design. The programme teaches competences via group game development projects and courses that primarily focus on 3D modelling, game art, game design, game development tools, level design, concepting, UI, UX, and animation. Many of these are taught via independent work, but the areas are also heavily emphasized in the projects.

 Additionally, the curriculum offers courses on subjects such as painting, narrative, image processing and photography, game analysis, game business, pitching, and character design.

Summary: XAMK's Culture and Arts/Game Design degree program focuses on practical skills through group game projects, emphasizing 3D modeling, game art, development tools, and more. Independent work and project-based learning complement courses in painting, narrative, game analysis, and business.

Curricula: https://opinto-opas.xamk.fi/28/en/48/6788/1598

2.5   University of Lapland/Lapland University of Applied Sciences

Lapland University of Applied Sciences offers a summer game studies module through via CampusOnline. It teaches game development as a whole through a teamwork setting, focusing on Unreal Engine and Blender for 3D modelling as its main tools. It also offers competences in design, sound design, concept art, and game production. Additionally, during the normal semester timings students can also take separate courses in basics of Unreal Engine, game programming, objected-oriented programming, and XR programming.

In Rovaniemi, Lapland University of Applied Sciences offers an ICT engineer degree programme with three main paths for students: software developer, developer of cyber-physical systems, and information management expert, with the first and third paths also being possible to attend online. These all include opportunities for additional game related studies, with the software developer path offering more than the other two. Notably, these are AI, project management, mobile programming, and the aforementioned three separate courses that are available via CampusOnline. Some of these courses are included in general project studies, so they may or may not be complementary depending on the context.

In Tornio, Lapland University of Applied Sciences offers degree programmes in computing that include game related studies. These are courses in AR/VR, game programming, business, gamification, and entrepreunership.

Additionally, some degree programmes in Lapland University of Applied Sciences include game related studies. The artist degree programme includes studies related to 2D/3D art.

University of Lapland has game studies as a minor subject, which is taught through a game project including all aspects of game development, such as 3D modelling, scripting, design, programming, art, etc. The studies are implemented in hybrid teaching and utilize workshop style learning. Additionally, students have another individual game studies course in which they themselves decide on the game development related aspect that they will learn during the course.

Summary: Lapland University of Applied Sciences does not offer direct game development degree programmes, but multiple programmes that include modules in various aspects of game studies. The specific areas of game development include 3D modelling, project work, Unreal engine, game programming, XR, VR, AR, gamification, and AI. University of Lapland has game studies as a minor subject, which includes an all-encompassing game project.

Courses:

https://opinto-opas-amk.peppi4.lapit.csc.fi/offerings/3/21664/13777

https://opinto-opas-amk.peppi4.lapit.csc.fi/offerings/3/21646/12677

https://opinto-opas-amk.peppi4.lapit.csc.fi/offerings/3/21646/13697

https://opinto-opas-amk.peppi4.lapit.csc.fi/offerings/3/21646/13698

https://opinto-opas-amk.peppi4.lapit.csc.fi/offerings/3/26480/13725

Curriculas:

https://opinto-opas-amk.peppi4.lapit.csc.fi/708/fi/90/4130

https://opinto-opas-amk.peppi4.lapit.csc.fi/41106/fi/90/4130

https://opinto-opas-lay.peppi4.lapit.csc.fi/fi/ohjelma/22838

2.6 University of Turku/Turku University of Applied Sciences

University of Turku and Turku University of Applied Sciences offer game studies via Turku Game Lab. It includes courses on algorithms for computer games, game development tools, multiplayer, game projects, game narrative. Competences on these subjects are gained through projects and lectures on topics such as workshops, game jams, game production, etc.

Turku University of Applied Sciences has two degree programmes, in Finnish and English, that offer game development related courses. The degree programme in Engineering, Information and Communications Technology (Game and Interactive Technologies) and its Finnish counterpart include courses on programming, object-oriented programming, game development tools, game project, game algorithms, serious games and gamification, 2D graphics, 3D graphics, UX, UI, and game testing.

Summary: The University of Turku and Turku University of Applied Sciences offer game studies through Turku Game Lab, covering algorithms, game development tools, multiplayer, and game narrative. Competencies are gained through projects and lectures on workshops, game jams, and production. Turku University of Applied sciences offers degree programmes that include courses on programming, game projects, algorithms, serious games, graphics, UX, UI, and testing in both Finnish and English degree programs.

https://www.turkugamelab.fi/?page_id=81

Curricula:

https://opinto-opas.turkuamk.fi/index.php/fi/21632/fi/21719

2.7 Centria University of Applied Sciences

Centria University of Applied Sciences offers game studies in the form of the Centria Game Lab. In its Game production basics, CGL has courses focusing on online project working tools and methodologies, game design analysis and research, user-centric design, level design via implementation and testing, game narrative via storyboarding and scripting, functional games, and VR technolo-

gies. Game design and production processes are taught as a bigger course. The course goes over the subjects of game design and production workflow, game concepting, prototyping, and theory in regard to game design. These concepts are learned through an ideation workshop. QA testing is taught via a course where the students conduct a game testing on a game concept. Portfolio making has its own dedicated course.

The business modules of CGL includes business basics and business planning, which teach about the different types of businesses, and the various important factors in starting a business. Game markets focuses on the game industry's market, and how the student should take its state into account in their own game production processes. The modules also include courses on communication in game industry, productization, and game industry jurisprudence, which handles legal documents included in the game industry, such as NDAs and working contracts.

The graphic modules of CGL teach the basics of 2D Game Graphics via workshops, background and character design and their different elements in making concept art (anatomy, perspective, lighting, etc.), 3D modelling and texturing which focuses on character modelling via Blender. The programming modules of CGL have courses on Unity game engine basics, Version control and its functionality in a project setting, and C# coding language. Additionally, CGL also offers courses in Pitching, Game community and culture, 2D Demo game production and Mobile game production via group projects, 3D game project in a group, Customer project, Game analytics, and Level design in programming.

Summary: CGL has a comprehensive selection of courses related to game production and game industry related business topics with an emphasis on workshop style learning and offers courses on more niche subjects that are useful for working life in the game industry. The subjects taught are project work, 3D, 2D, game design, game programming, coding languages, level design, game analysis, game analytics, mobile game production, Unity, version control, game business, QA, VR, communications, game industry jurisprudence, concept art.

https://net.centria.fi/tki/tutkimme-ja-kehitamme/digitalisaatio/game-lab/

2.8 Kajaani University of Applied Sciences

Kajaani University of Applied Sciences offers game studies in the Business Information Technology degree programme, which is fully focused on game development. It offers extensive and comprehensive competences in three areas of game development: programming, graphics, and production. The students specialize in one of these areas throughout the programme, and the course selection has a large variety of in-depth courses on each one.

The study methodology of the programme is realised through game projects that the students work on and publish. The taught theories are applied in practical work. The subjects taught in the degree include programming, object programming, data security, information networks, project management, algebra, communication, game business, game design, game production, 2D art, 3D modelling, UI, game testing, game sound, 2D animation, 3D graphics, game analytics, game monetization, game jurisprudence, marketing, AI, mobile games, level design, game culture, motion capture.

The specialization of the student will affect which type of game projects they participate in and what role they take in the production. The programme offers a huge variety in the types of game projects that can be done, including 2D game, mobile game, 3D game, extensive game, and an advanced project.

Summary: The degree programme in Business Information Technology at KAMK provides an extremely comprehensive and diverse selection of game related studies, through courses and game projects with massive variety. Its students specialize in one of three areas: programming, graphics/art, and production.

Curricula:

http://opinto-opas.kamk.fi/index.php/en/68146/en/91559/TBIT24S/year/2024

2.9   JAMK University of Applied Sciences

Jamk offers game studies via its Business Information Technology programme, which is one of the few bachelor's level programmes in Universities of Applied Sciences dedicated solely to video game development and production. The students of the programme gain competence through applying the skills they learn in courses in game projects, and other teamwork-based assignments.

The programme includes courses about programming, digital media, marketing, software engineering, game design, game engines, game production, UX, narrative, game art, 2D, 3D, AI, XR, game sound, modding, game testing, gamification, video production, digital photography, and game projects.

Summary: Jamk's Business Information Technology programme offers a diverse set of competences in game development, offering courses in almost every major area of game studies. The students apply the skills they learn in courses in project work, where they produce games and eventually publish them.

2.10 Metropolia University of Applied Sciences

Metropolia University of Applied Sciences offers specific competences related to game development in some degree programmes.

In the 3D animation and visualization programme students can take courses in 3D modelling, 3D texturing, 3D lighting, 3D animation, 3D in relation to AR/XR/VR, and 3D production.

In the XR Design programme students can learn how to master subjects such as 3D modelling, sculpting, animation, lighting, texturing, 3D models in game engines, programming, UI design for VR/AR, and teamwork.

Summary: Metropolia University offers game development skills in programs like 3D animation (covering modelling, animation, AR/VR) and XR Design (including 3D modelling, animation, game engine use, programming, and UI design).

https://www.metropolia.fi/en/academics/bachelors-degrees/xr-design

Curriculas:

https://opinto-opas.metropolia.fi/88094/fi/29/70423/3176/2416

2.11 Savonia

Savonia university of applied sciences offers various courses in programming through its Code Academy. For game development purposes, these include many programming languages, object-oriented programming, and AI tools.

Summary: Savonia university of applied sciences offers various courses in programming through its Code Academy.

https://www.savonia.fi/paivita-osaamistasi/avoimet-osaamiskokonaisuudet/savonia-code-academy/sisalto/

3   Insights and Curriculum Chart

To further develop game studies in Finland as a whole, it is important to identify which degree programmes offer which game development related subjects via courses. Some example insights based on the compiled curriculum structures:

- Most of the full degree programmes or modules include a course on game design and a game project course. The implementations of both are in many cases paired up, having the students work their game design material through creating a game in a group setting. The opportunities to make solo game projects are usually tied to credits from professional projects or even customer projects.
- The programmes of Aalto university and XAMK have courses called Game Analysis, and the other curriculums have courses that implement game analysis.
- Xamk and Jamk have courses on digital photography.
- Xamk, KAMK, and CGL have courses on 3D modelling.
- Most of the institutions have courses on 3D graphics related subjects.
- Jamk, Turku AMK, CGL, and KAMK have courses on 2D basics/graphics.
- Xamk, KAMK, and Jamk have courses teaching 2D animation.
- CGL and Aalto University have courses on VR.
- CGL, KAMK, and Jamk have courses on mobile game production.
- Jamk is the only institution with a game studies degree that teaches courses on XR. Metropolia also offers XR design.
- Aalto University, Jamk, and Xamk offer courses on video game narrative.
- Programming is taught in many different forms in most of the degree programmes.

See the excel file for the curriculum comparison for more insights.