ESTONIAN
ENTREPRENEURSHIP UNIVERSITY
OF APPLIED SCIENCES

Advanced 3D Videogame Art (AD-043)

(3D MÄNGUGRAAFIKA EDASIJÕUDNUTELE)

(Усложнённая 3D игровая графика)

SUBJECT DESCRIPTION

Credits (ECTS)	3.00 ECTS
Assessment	grading

Aim of the subject and short description

The objective of this course is to advance students' 3D modelling skills by developing their expertise in texturing, shading, lighting, and rendering, with a focus on creating visually realistic and technically optimized game assets for real-time engines. The course covers PBR (Physically Based Rendering) workflows, UV mapping, material creation, and advanced lighting techniques, using industry-standard software such as Substance Painter, Blender, and Unreal Engine/Unity.
Through hands-on exercises and project-based work, students will develop high-detail textures, realistic materials, and efficient rendering solutions suitable for both real-time and pre-rendered applications. Special attention will be given to baking techniques, texture optimization, and shader development to ensure assets meet industry standards while maintaining performance efficiency.
This course is designed for students with prior experience in 3D modelling who want to refine their skills in texturing, shading, and rendering. Through theoretical lessons and practical assignments, students will gain a deeper understanding of how to create professional-quality 3D art for games and interactive media.

Learning outcomes:

Student:

1. will be able to create high-quality textures using PBR workflows and procedural techniques;
2. will be able to develop and optimize UV maps, normal maps, and baked textures for real-time rendering;
3. will be able to implement advanced shading and material techniques in game engines;
4. will be able to apply lighting and rendering principles to enhance the visual impact of 3D assets;
5. will be able to optimize 3D assets for efficient in-game performance without compromising visual quality.