

COURSE PACKAGE

ANIMATION (Bachelor MultiMediaArt)

SPRINGTERM

Prerequisites for all of the courses:

By the fourth semester, students are expected to have a solid foundation in the complete animation and production pipeline — from concept development, storytelling, and pre-production planning to 3D modeling, texturing, rigging, animation, and rendering. They should also be proficient in using core tools such as Maya, Unreal Engine, and Houdini, understand real-time workflows, and be capable of managing projects independently within collaborative production settings.

Acquired skills and knowledge include:

- Storytelling & visual development
 - Character & environment design
 - 3D modeling and sculpting (Maya, ZBrush)
 - Texturing, shading & lighting
 - Rigging & character animation
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- Scene layout & camera animation
 - Rendering & compositing (Arnold, Nuke, Unreal)
 - Procedural workflows (Houdini)
 - Real-time scene building & Blueprint logic
 - Basic VFX and simulation techniques
 - Project organization & collaborative pipeline workflows

Course Title: Animation Fundamentals 2

Semester: 4th Semester

ECTS / SWS: 3 ECTS / 2 SWS

Course Type: ILV

Course Content: Non-linear animation, procedural animation, facial animation, scattering, crowd simulation, caches (Alembic, GPU, etc.), project finishing.

Learning Outcomes:

Students:

- Can set up a MASH network,
- Can create simple crowd simulations,
- Can create simple expressions/scripts,
- Understand the advantages and use of geometry caches,

- Know different techniques for distributing objects in 3D scenes,
- Produce a computer animation following technical requirements.

Course Title: Animation Production 2

Semester: 4th Semester

ECTS / SWS: 3 ECTS / 2 SWS

Course Type: ILV

Course Content: Management and controlling of animation projects, from storyboard to final product, detailed shot planning, workflows and pipelines, team communication, communication with clients, project documentation, post-mortems.

Learning Outcomes:

Students:

- Can design and communicate a CG shot in detail,
- Can set up a simple production pipeline,
- Can document a project,
- Understand the importance of clear communication and interfaces,
- Understand the relevance of management and controlling,
- Understand the particularities of the creative industries → personnel vs machine costs.

Course Title: Character 2 – Rigging & Animation

Semester: 4th Semester

ECTS / SWS: 3 ECTS / 2 SWS

Course Type: ILV

Course Content: Basics of character animation, animation planning, walk cycle, simple moves, object interaction, biped character rigging, joints, forward kinematics, inverse kinematics, skinning, advanced rigging (IK/FK switch, spline IK, etc.).

Learning Outcomes:

Students:

- Can independently create a rig for a humanoid character,
- Can bind a character's mesh to a skeleton,

- Can animate a simple walk cycle,
 - Can animate simple movement sequences,
 - Can apply the principles of animation in their own work,
 - Know the quality criteria of animation and can communicate them,
 - Understand different rigging concepts.
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Course Title: Interactive Authoring 3

Semester: 4th Semester

ECTS / SWS: 2 ECTS / 1.5 SWS

Course Type: ILV

Course Content: Realtime lighting, light maps and light baking, light probes, animation for games, animation controller, basics of real-time particle systems, interactive effects, assets for AR/XR.

Learning Outcomes:

Students:

- Can fully light a real-time scene,
 - Can design and create simple particle effects,
 - Recognize performance issues in a real-time scene,
 - Can import animations into game engines and bind them to objects,
 - Can develop simple interactions,
 - Understand performance aspects of real-time graphics (draw calls, fill rate, etc.),
 - Understand the use of an animation controller.
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Course Title: Guest Professorship 2 – Animation

Semester: 4th Semester

ECTS / SWS: 0.5 ECTS / 1 SWS

Course Type: ILV

Course Content: Guest lecturers from the creative industry present current examples of emerging trends and technologies in guest lectures or workshops.

Learning Outcomes:

Students:

- Gain deeper insights into the latest trends and technological developments,
 - Can apply the acquired skills to their projects.
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Course Title: Rendering & VFX 2

Semester: 4th Semester

ECTS / SWS: 3 ECTS / 2 SWS

Course Type: ILV

Course Content: Node-based compositing, projection mapping, 3D integration, 3D camera tracking, photorealistic rendering of animation sequences, EXR workflow, advanced shader creation, product visualization, interior rendering, image-based lighting, HDR workflow.

Learning Outcomes:

Students:

- Can integrate a 3D object into a real scene (video),
- Can independently solve complex VFX tasks,
- Can render and optimize an animation sequence,
- Can photograph and use a 360° HDR image,
- Can track camera movement data and import it into a 3D program,

- Understand the multilayer EXR workflow,
 - Understand the use and effect of light for different scenarios.
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Course Title: English Study Group 2 – Animation

Semester: 4th Semester

ECTS / SWS: 0.5 ECTS / 1 SWS

Course Type: ILV

Course Content: The focus of the English Study Group is on improving spoken English skills. Discussing and presenting content and personal projects from the chosen specialization enhance linguistic skills (e.g., phrasing, emphasis, presentation technique). Grammar and vocabulary are improved through targeted exercises and text analysis, and complex topics in the context of the specialization are discussed (content from the respective subject areas, current affairs, active vocabulary expansion).

Learning Outcomes:

Students:

- Can discuss and argue theoretical and practical topics in English,
- Can adequately present content and personal projects in English,
- Possess descriptive vocabulary and academic terminology.