LUND UNIVERSITY

LTH
FACULTY OF ENGINEERING

Programme Syllabus

Master's Programme in Virtual Reality and Augmented Reality

- Faculty: Faculty of Engineering, LTH
- Programme code: TAVAR
- Credits: 120
- Admission level: Bachelor's degree
- Degree level: Second cycle
- Approved by: Programme Board C/D
- Approval date: 12 February 2026
- Validity: Academic year 2026/2027
- Entry into force: 12 February 2026

1 Aim and outcomes

1.1 Aim

The overall goal of this internationally oriented programme is to develop future professionals in the field of Virtual Reality (VR) and Augmented Reality (AR) by providing students with sound theoretical knowledge and hands-on practical experience. It should prepare the students and develop essential professional skills for a career in VR and AR and for research (third cycle) studies. More specifically, the overall objectives of the programme are:

- Provide a holistic framework for VR and AR education by combining qualitative and quantitative approaches, methodologies and tools.
- Offer in-depth knowledge and specialization expertise in VR and AR principles, practices, technologies, tools and methodologies.

- Establish high relevance to VR and AR practice by providing frameworks, tools and methods that are applied to real-life practitioners' problems and issues, supporting a role as future change agent.
- Provide a framework for students to develop subject-specific skills e.g. using new technologies such as real-time raytracing, machine learning and eye-tracking.
- Provide a framework for students to develop transferable professional and research skills.

1.2 Outcomes for a Degree of Master of Science (120 credits)

(Higher Education Ordinance 1993:100)

Knowledge and understanding

For a Degree of Master of Science (120 credits) the student shall

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a Degree of Master of Science (120 credits) the student shall

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work

- demonstrate the ability in speech and writing both nationally and internationally to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and approach

For a Degree of Master of Science (120 credits) the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

1.3 Specific outcomes for a Degree of Master of Science (120 credits) in Virtual Reality and Augmented Reality

Knowledge and understanding

For a Degree of Master of Science (120 credits) within the field of VR and AR students shall

- demonstrate broad understanding and intuition for the whole process of generating artificial stimuli and delivering them to the senses of a human user.
- have methodological knowledge of how to design VR and AR systems based on the needs, wishes, limitations and abilities of a particular set of users for a particular set of tasks.
- demonstrate specialized knowledge in enabling technologies for VR and AR e.g. computer graphics and imaging technology.

Competence and skills

For a Degree of Master of Science (120 credits) within the field of VR and AR students shall be able to

- use tools, guidelines and methods for designing, implementing and evaluating VR and AR systems.
- demonstrate the ability to communicate with a broad range of disciplines e.g. computer graphics, software development, UX design, human factors and 3D modelling.
- follow and participate in research and development related to VR and AR.

Judgement and approach

For a Degree of Master of Science (120 credits) within the field of VR and AR students shall be able to

- demonstrate the ability to professionally reflect on the potential ethical issues with immersing the human senses in highly realistic artificial stimuli, for the individual and for society at large.
- appreciate the merits of collaborating with practitioners and solving problems with VR and AR that are relevant to industry and society at large.

2 Programme structure

The programme includes courses intended to provide deep and broad knowledge required for understanding how VR and AR systems work. The programme starts with courses that give a solid foundation in computer graphics, imaging technology and interaction design and then continues with courses focused on VR and AR. The programme is concluded by a degree project worth 30 credits.

2.1 Courses

The courses included in the programme are indicated in the timetable.

2.2 Further studies

On completion of the second-cycle degree, students have basic eligibility for third-cycle studies.

3 Admission requirements

A Bachelor's degree in computer science, computer engineering, or equivalent. Completed, dedicated courses in mathematics of at least 30 credits/ECTS. The mathematics courses must include calculus in one and several variables (5 credits/ECTS), linear algebra (5 credits/ECTS), systems and transforms (5 credits/ECTS), and probability theory and statistics (5 credits/ECTS). Basic skills in object-oriented programming (at least one course of 5 credits/ECTS). English 6.

4 Degree

4.1 Degree requirements

For a Degree of Master of Science (120 credits) students must successfully complete courses comprising 120 credits, including a degree project worth 30 credits. At least 90 credits must be second-cycle credits and at least 60 credits of those must be in the main field of study, including the degree project.

4.2 Degree and degree certificate

When students have completed all the degree requirements, they are entitled to apply for a degree certificate for a Master of Science (120 credits). Main Field of Study: Virtual Reality and Augmented Reality.