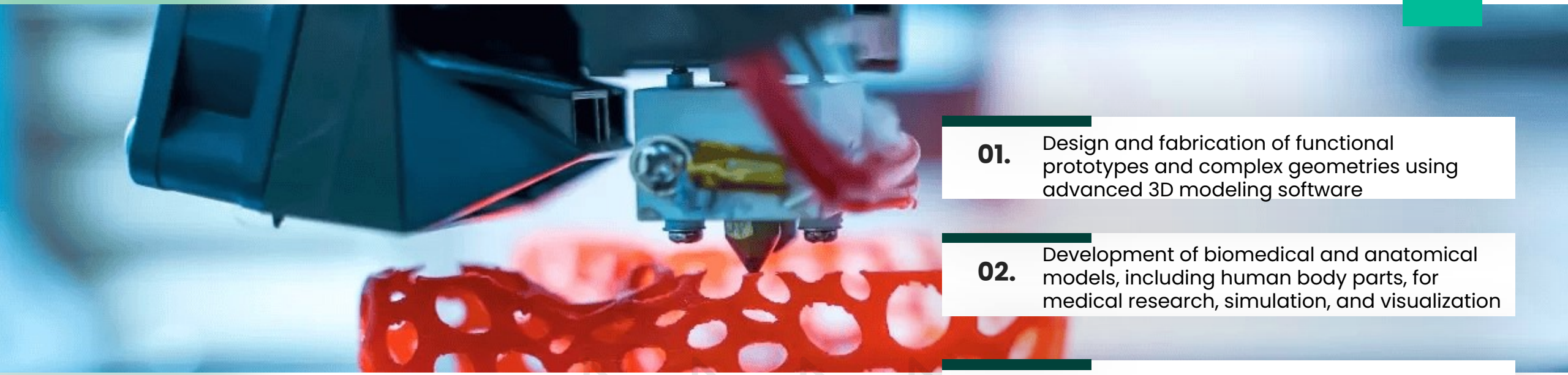
# 3D Lab

The 3D Lab at the University of Vlora “Ismail Qemali” is an advanced technological and research infrastructure designed to support high-level academic research, innovative teaching, and knowledge transfer. The lab is equipped with state-of-the-art 3D modeling and additive manufacturing technologies, enabling the design, simulation, and fabrication of complex components and prototypes.

Its multidisciplinary orientation allows applications across engineering, medical, biomedical, natural sciences, and applied research fields, positioning the laboratory as a strategic hub for innovation and collaboration.

## Aim

The primary aim of the 3D Lab is to enhance research excellence and practical education through advanced additive manufacturing technologies. The lab seeks to bridge theory and practice by providing students and researchers with access to modern 3D design and fabrication tools, while fostering innovation, experimentation, and applied research. Additionally, the laboratory aims to support regional development by offering high -quality technological services and research collaboration opportunities to external stakeholders and third partners.



# Main research activities

The 3D Lab supports applied and experimental research in areas related to additive manufacturing, digital design, and rapid prototyping.

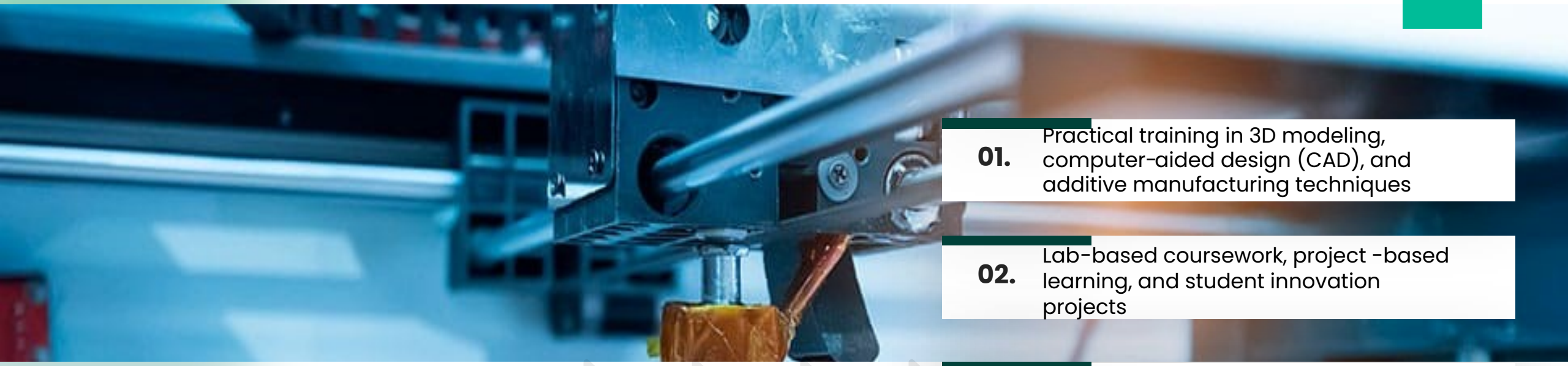
**01.** Design and fabrication of functional prototypes and complex geometries using advanced 3D modeling software

**02.** Development of biomedical and anatomical models, including human body parts, for medical research, simulation, and visualization

**03.** Research on materials for 3D printing, including polymers and composite materials

**04.** Optimization of additive manufacturing processes for accuracy, efficiency, and sustainability

**05.** Support for interdisciplinary research projects involving engineering, health sciences, and applied technologies



# Main teaching activities

The lab plays a central role in enhancing teaching and learning through hands-on, technology-driven education. It is integrated into undergraduate and postgraduate curricula and supports:

01. Practical training in 3D modeling, computer-aided design (CAD), and additive manufacturing techniques

02. Lab-based coursework, project-based learning, and student innovation projects

03. Development of technical skills in prototyping, product design, and digital fabrication

04. Support for bachelor's, master's, and doctoral theses involving experimental and applied research

05. Promotion of creativity, problem-solving, and entrepreneurship among students


# Services to third partners

Through its integrated approach to research, teaching, and external engagement, the 3D Lab at the University “Ismail Qemali” Vlora, contributes to technological advancement, skills development, and regional innovation ecosystems.

**01.** Customized 3D printing and rapid prototyping for industry, healthcare providers, and public institutions

**02.** Design and fabrication of educational, technical, and biomedical models

**03.** Technical consultancy and collaborative research with companies, startups, and research centers

**04.** Support for innovation projects, pilot studies, and product development

**05.** Knowledge transfer and capacity -building initiatives aimed at strengthening university–industry collaboration