Smaller educational project at NV

Report and experience sharing

Project name: Development of digital twin lab for biomedical laboratory science education

Project Manager(s): Yanran Cao

Project period: Autumn semester 2022 and spring semester 2023

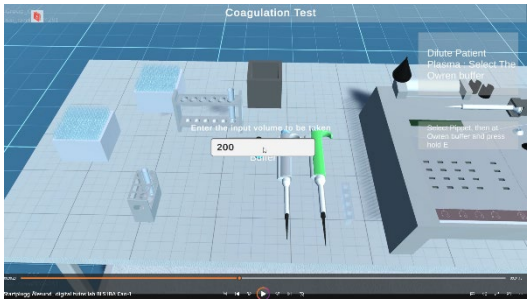
Award from NV: Smaller educational project at NV

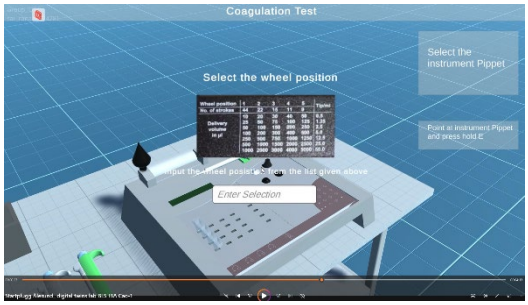
What were the funds used for? For students work in this project.

How did the project go?

The project started in September 2022 and ended in August 2023. This project is performed based on the collaboration between IBA and Department of Ocean Operations and Civil Engineering, Faculty of Engineering (IHB), and using laboratory resource from both IBA and IHB. IHB have data management platforms where datasets and models can be made public, Digital Twin Technology, Advanced topics in simulation and analysis of maritime operations, Real-time AI for robotics and simulated environments, and Applied AI and Control. The budget of this project was applied for the student assistants who involve in this project.

The digital twin lab module was developed in course HBIOA1001 (An introduction to biomedical laboratory technology) for the basic laboratory techniques and quality assurance in bioengineering work methods. Yanran Cao at IBA is responsible for this course. Dr. Peihua Han at IHB supervised the student assistants for establish the digital lab course. The system of BLS lab and the experiment of coagulation analysis was demonstrated in the attached video (Utdannningsprosjekt ved NV 2022-2023 YC IBA).





During this project, we planned to establish a long-term project on simulating- based teaching in biomedical laboratory science (BLS) education in Norway and with related international partners. The application for the major project were submitted to Diku (Norwegian Agency for International Cooperation and Quality Enhancement in Higher Education) and was supported between 2023 and 2026. In this UTFORSK project, we intend to develop a modular and universally applicable simulation experiment program. Various digital simulation teaching methods or technologies will also be incorporated into the system. Our aim is to establish a unified DTLab-based learning platform, serving as a sustainable framework for both Norwegian and international Basic Life Support (BLS) education.