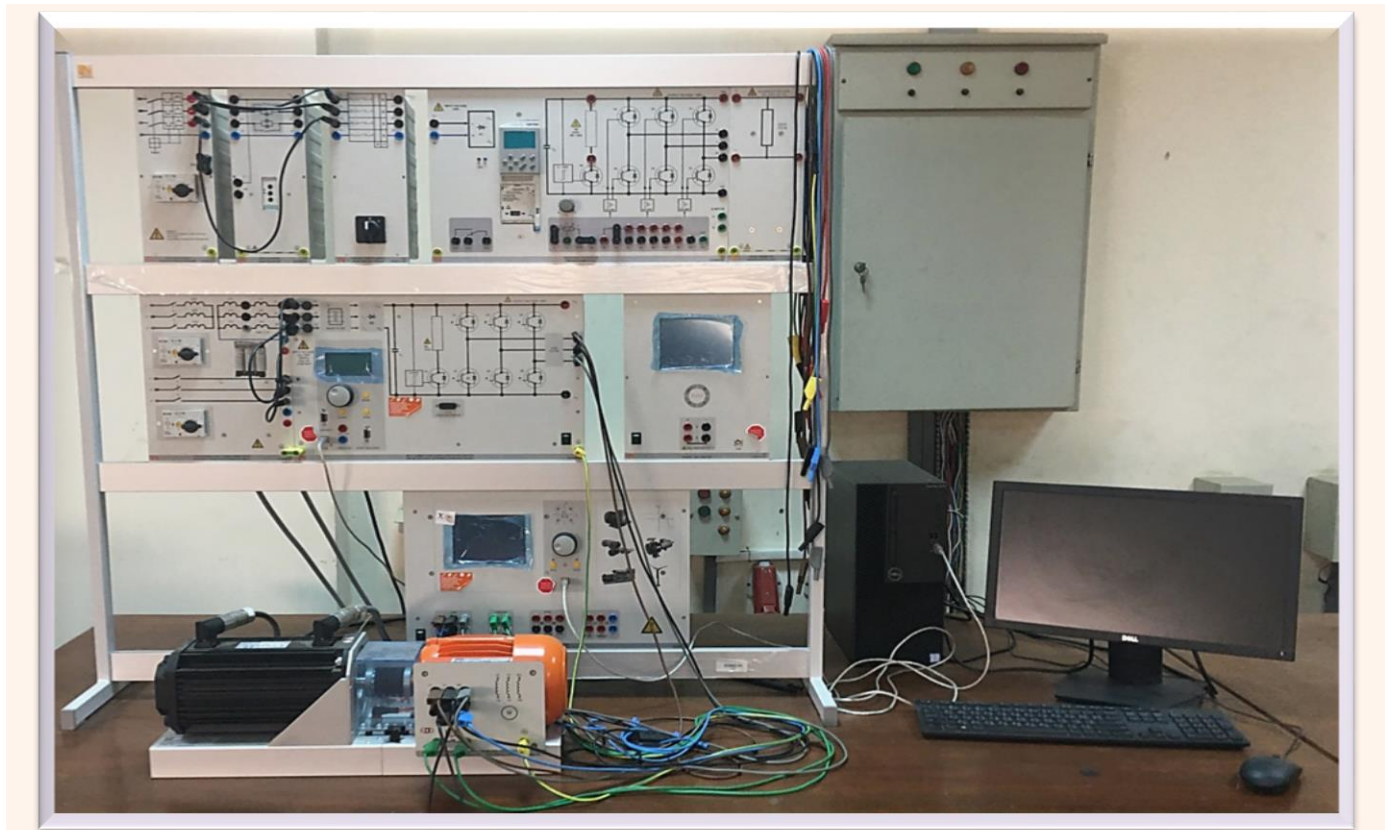
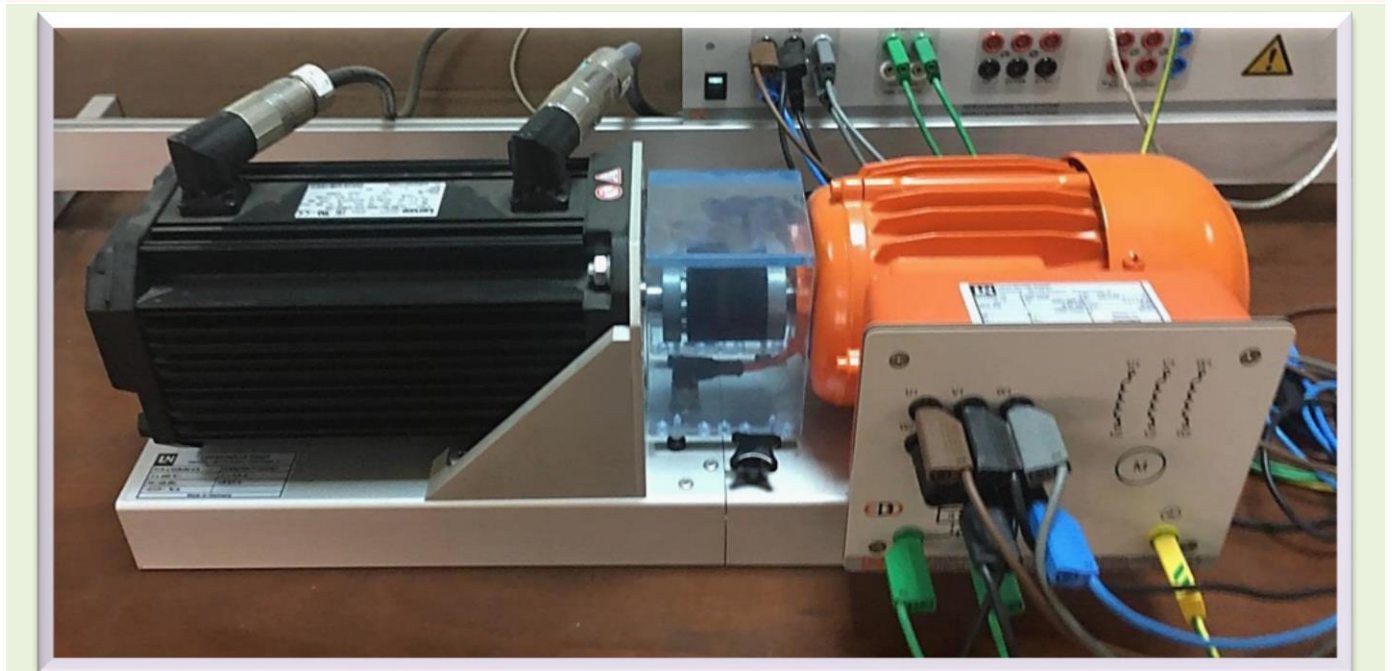


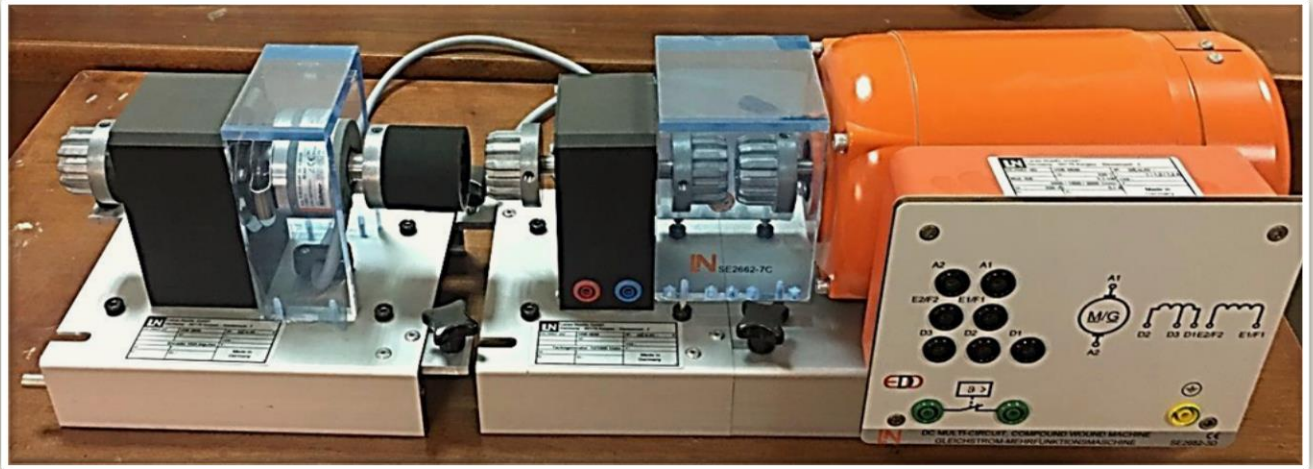
ELECTRICAL DRIVES LAB.



Electrical Drives Unit



Asynchronous machine



DC machine

The lab covers the following Training Objective:

- Field-oriented control of asynchronous machine with MATLAB–Simulink Exp.
- Setting up a hardware-in-the-loop system under real-time conditions
- Modeling and designing cascade closed-loop control for a DC motor on an ongoing design level
- Reducing the control system to discrete components to run on a digital signal processor
- Creation and optimization of automatic flow-rate and speed controllers
- Park- und Clarke transformation
- Integration of the space phase modulation to optimize the control of the IGBT
- Speed detection using incremental sensors
- Comparison of simulation results with actual measurements
- Converter drives with DC motors Using IGBT Exp.
- Investigation of closed-loop speed control in the 1 and 4 quadrant operation with and without cascade current control
- Investigation of open-loop speed control in 1-quadrant operation with IGBT
- Investigation of open-loop speed control in 4-quadrant operation with IGBT
- Familiarization with closed-loop speed control, closed-loop current control, cascade control, adaptive control
- Computer-assisted controlled-system and controller analysis, setting parameter
- Study of P-, PI- control
- Study of controller optimization