MIMOSA
TECHNICAL CONSULTING & CONTRACTING

Mechatronics Experiments

Representative integrated systems and projects

12 illustrated examples selected from the wider Leybold / LD DIDACTIC educational range.

VIEW • SELECT • CONFIGURE • INSTALL • TRAIN

Available experiment examples

E6.1.2.1 | Technical college / university

Sensors and transducers

Connect physical sensors to measurement and control tasks.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES

Calibration; signal conditioning; position, force, temperature and speed sensing.





E6.3.2.1 | Technical college / university

DC servo system

Investigate position and speed control with a servo drive.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES

Motor model; feedback; controller tuning; transient response and disturbances.

Available experiment examples

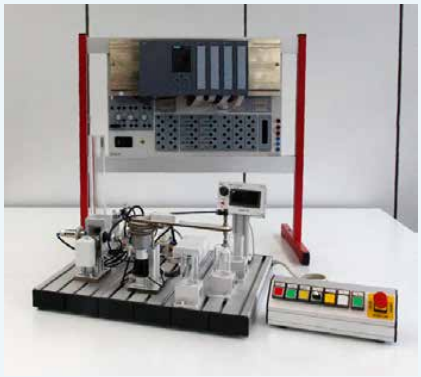
E6.3.2.2 | University / advanced technical training

AC servo system

Study industrial-style AC servo behaviour and motion control.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES
Speed and position loops; set-point tracking; load response; tuning.





E6.7.2.1 | Mechatronics / automation

PLC automatic sorting line

Programme sensing, classification and handling on a compact production line.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES
PLC sequence; sensor logic; actuators; sorting; commissioning and fault-finding.

Available experiment examples

E6.7.2.3 | Mechatronics / automation

Dual conveyor with PLC

Develop progressively complex material-flow programs using conveyors and sensors.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES
Timers; counters; master and zone control; interlocks; height gauging.





E6.7.1.3 | PLC / process automation

ASIMA plant simulator

Train with multiple simulated industrial plants on one hardware platform.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES
S7 programming; process sequences; diagnostics; commissioning; fault scenarios.

Available experiment examples

E6.7.2.8 | Advanced mechatronics

Material control with quality inspection

Integrate handling, inspection and decision logic into a production cell.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES
Quality sensing; PLC logic; rejection handling; process optimisation.





COM4LAB / machine systems | Mechatronics / electrical engineering

Electrical machines and drives

Link machine principles, electronic drives and measurement in practical exercises.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES
DC and AC machines; speed–torque behaviour; converters; efficiency and load testing.

Available experiment examples

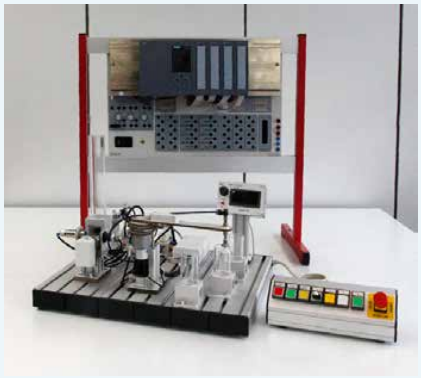
VE7.4.3.2 | Mechatronics / logistics automation

High-bay warehouse with material control

Programme storage, retrieval and material tracking in an automated warehouse model.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES

Positioning; sequencing; inventory locations; sensors; interlocks and fault diagnosis.





VE7.4.1.1 | Industrial automation

PLC expert and plant simulation

Use PLC hardware with simulated plants to develop and test industrial control programs.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES

IEC programming; process sequences; commissioning; alarms; diagnostics and optimisation.

Available experiment examples

E6.3.1.2 | Mechatronics / process control

Flow and level process control

Combine sensors, pumps and controllers to regulate fluid processes.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES

Level and flow measurement; P/PI/PID control; disturbances; set-point response and tuning.





E6.7 / VE7.4 systems | Advanced mechatronics

Integrated handling and inspection projects

Build open-ended projects around sensing, movement, inspection and production decisions.

EXPERIMENT EXAMPLES / LEARNING OUTCOMES

System integration; state machines; quality decisions; safety logic; cycle-time optimisation.

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