Technology
Arts Sciences
TH Köln

Course
ITAU - Information technology for automation technology

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General information

Long name	Information technology for automation technology
Approving CModule	ITAU_BaET
Responsible	Prof. Dr. Norbert Große Professor Fakultät IME
Level	Bachelor
Semester in the year	summer semester
Duration	Semester
Hours in self-study	78
ECTS	5
Professors	Prof. Dr. Norbert Große Professor Fakultät IME
Requirements	no
Language	German
Separate final exam	Yes

Final exam

Details

Written exam with programming tasks to be processed and questions to answer

Minimum standard

Achieving half of the possible points

Exam Type

Written exam with programming tasks to be processed and questions to answer

Lecture / Exercises

Learning goals

Knowledge

lecture content

Introduction to automation technology

Definitions (automation, regulation, control, control categories ...)
Tasks of process control technology (PLT), symbolics
Standards and guidelines

Implementation-independent description of control processes

Description of link controls (decision tables, blocks)
Description of Sequence Control (Grafcet, Petri Nets Basics)

Structure and mode of operation Programmable logic controllers

Technologies (module PLC, soft PLC ...)
PLC operating system (focus on real-time operation, process management)
Connection of field devices (input / output modules, RIO ...)

PLC programming (lecture emphasis)

General architecture concept according to DIN EN 61131-3
Common elements of the programming languages
Programming languages according to DIN EN 61131-3
Programming safety-related PLCs
test methods

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	2
Exercises (whole course)	1
Exercises (shared course)	0
Tutorial (voluntary)	0

Separate exam

none

Practical training

Learning goals

Skills

Practical exercise

FBT (Function Block Text): Shortcut controls; Three-way valves, container monitoring, split-range modules ...

ST (structured text): algorithms (soft sensors, PT1 element, deadtime element ...)

AS (procedural language): sequential control systems; Technical functions (dosing, start-up of control loops ...)

In each case creating functions, function blocks, programs, libraries; object-oriented methods (OOP), test methods

Visualization: Recording of step responses, display of control loop quantities, traffic light control

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Practical training	1
Tutorial (voluntary)	0

Separate exam

none