Technology
Arts Sciences
TH Köln

Course Manual ITAU

Information technology for automation technology

Version: 2 | Last Change: 29.09.2019 09:56 | Draft: 0 | Status: vom verantwortlichen Dozent freigegeben

General information

Long name	Information technology for automation technology
Approving CModule	ITAU_BaET
Responsible	Prof. Dr. Norbert Große Professor Fakultät IME
Valid from	summer semester 2023
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

Literature

Taschenbuch der Automatisierungstechnik, Große, Schorn, Hanser Verlag

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	EN Klausur

− Lecture / Exercises

Learning goals

Goal type	Description
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

Special requirements

no

Accompanying material	Slide sets, script of the lecturer, Software Codesys as a free student version
Separate exam	No

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	2
Exercises (whole course)	1

Exercises (shared course)	0
Tutorial (voluntary)	0

− Practical training

Learning goals

Goal type	Description
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

Special requirements

no

Accompanying material	Software Codesys as a free student version
Separate exam	No

Expenditure classroom teaching

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