

Course Manual PLTP

Process Control Engineering

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– General information

Long name Process Control Engineering

Approving CModule PLTP BaET

Responsible Prof. Dr. Norbert Große
Professor Fakultät IME

Valid from winter semester
2022/23

Level Bachelor

Semester in the year winter semester

Duration Semester

Hours in self-study 60

ECTS 5

Professors Prof. Dr. Norbert Große
Professor Fakultät IME

Requirements no

Language German

Separate final exam Yes

Literature

eigenes Skriptum der Vorlesung (530 Seiten)

Taschenbuch der Automatisierungstechnik, Große, Schorn, Hanser Verlag

Final exam

Details

Basis of cooperation in the teams and in particular the evaluation are contributions and questions to the lecture or in the discussion, answers to questions by the lecturer on the subject after the lecture, protocols mails to the client, lectures (each at least 1 lecture) technical requirement to the plant, technical solution concept and the offer for sale.

Minimum standard

Each of the examination elements must be passed with at least sufficient

Exam Type

EN mündlicher
Ergebnisbericht
(Vortrag / Präsentation)

– Lecture / Exercises

Learning goals

| Goal type | Description |
|-----------|---|
| Knowledge | Structured control technology planning Project handling in phases Quality assurance in the planning CAE planning tools Functional safety of systems Explosion protection Control system structures |
| Knowledge | Understanding and analyzing process control tasks Structuring process engineering processes Structuring of process engineering plants Production methods and plant concepts Requirements for the process control technology Perform structured planning Assessment of plant safety Designing control system structures |
| Knowledge | Functional safety of systems security analysis Classes of PLT facilities Proper and improper use explosion protection |
| Knowledge | Availability of equipment and components Availability and security Increase in availability Backup of data |
| Knowledge | Structures of process control systems Process-related functions and components Display and operating functions and components System Network fieldbus |

Special requirements

no

Accompanying material Notes and schedules for the lecture, Book for the lecture with slides and accompanying text

Separate exam Yes

Separate exam

Exam Type EN Projektaufgabe im Team bearbeiten (z.B. im Praktikum)

Details Communication with a customer
Declaration of the task as specifications
Presentation of results

Minimum standard Lecture on the task or solution concept

Expenditure classroom teaching

| Type | Attendance (h/Wk.) |
|---------|--------------------|
| Lecture | 2 |

| | |
|--------------------------|---|
| Exercises (whole course) | 2 |
|--------------------------|---|

| | |
|---------------------------|---|
| Exercises (shared course) | 0 |
|---------------------------|---|

| | |
|----------------------|---|
| Tutorial (voluntary) | 0 |
|----------------------|---|

– Lecture / Exercises

Learning goals

| Goal type | Description |
|-----------|---|
| Skills | Detect process control task |
| | Describe with formal methods (ER diagram, phase model) |
| | Understand formalized plant descriptions |
| | Hold presentations |
| | Create written planning documents |
| Skills | Process control solution concepts |
| | Develop control system structure |
| | Develop fieldbus structure |
| | Develop safety and protection system |
| | Presenting concepts in written and spoken form |
| Skills | Teamwork to create concepts |
| | Create logs |
| | Lead a safety conversation |
| | Lead Structured interview of the customer |
| Skills | Prepare presentation and represent own company and own competence |
| | Represent the state of planning |
| | Represent results |
| Skills | create written documentation |
| | create text that is formally and scientifically |
| | work out specifications |
| | create offer for sale |

Special requirements

no

Accompanying material

Software for presentation und documentation, Book for the lecture with slides and accompanying text, electronic notes and schedules for project processing

Separate exam

No

Expenditure classroom teaching

| Type | Attendance (h/Wk.) |
|----------------------|--------------------|
| Project | 1 |
| Tutorial (voluntary) | 0 |