

**Modulbezeichnung:** Process Control and Plant Safety (Lab Course) (PCS (Lab)) 7.5 ECTS  
(Process Control and Plant Safety (Lab Course))

Modulverantwortliche/r: Andreas Bück

Lehrende: Andreas Bück

Startsemester: SS 2022

Dauer: 1 Semester

Turnus: jährlich (SS)

Präsenzzeit: 75 Std.

Eigenstudium: 150 Std.

Sprache: Englisch

#### Lehrveranstaltungen:

Process Control and Plant Safety (SS 2022, Vorlesung, 2 SWS, Andreas Bück)

Process Control and Plant Safety (Exercise) (SS 2022, Übung, 3 SWS, Andreas Bück)

Process Control and Plant Safety (Lab Course) (SS 2022, Praktikum, 3 SWS, Andreas Bück)

#### Empfohlene Voraussetzungen:

Prerequisites: Required

- Mathematics 1 - 3, Statistics

Recommended

- Thermodynamics and Heat and Mass Transfer
- Fluid dynamics
- Chemical Reaction Engineering
- Bio Process Engineering

#### Inhalt:

- Basic concepts of process and plant safety
- Layer model of process and plant safety
- Reliability of processes and plants/Risk analysis
- Automation systems for process and plant safety
- Failure impact analysis
- Cyber Security in view of Internet of Things (IoT)
- Case studies from (bio-)chemical industries

#### Lernziele und Kompetenzen:

Students will be able identify and analyze risks in process and plant operation and be able to protect equipment, humans and environment from operational hazards. The module provides key concepts and methods to assess risks and to increase operational safety, especially by use of process automation.

#### Literatur:

- SFPE, NFPA, The SFPE Handbook of Fire Protection Engineering, 2008
- Hauptmanns, U. (Ed.) Plant and Process Safety, in Ullmann's Encyclopedia of Industrial Chemistry, 8th edition
- Center for Chemical Process Safety (CCPS) "Guideline for Engineering Design for Process Safety" Wiley 2012

#### Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:

Das Modul ist im Kontext der folgenden Studienfächer/Vertiefungsrichtungen verwendbar:

##### [1] Clean Energy Processes (Master of Science)

(Po-Vers. 2021w | Gesamtkonto | Specialisation Energy systems | Specialisation modules with laboratory course 1-2 | Process control and safety with laboratory course)

#### Studien-/Prüfungsleistungen:

Process control and safety (Prüfungsnummer: 29011)

Prüfungsleistung, mündliche Prüfung, Dauer (in Minuten): 30

Anteil an der Berechnung der Modulnote: 100% Prüfungssprache: Englisch

Erstablingung: SS 2022, 1. Wdh.: WS 2022/2023

1. Prüfer: Andreas Bück

Laboratory course: Process control and safety (Prüfungsnummer: 29012)

Studienleistung, Praktikumsleistung

weitere Erläuterungen:

Lab protocol ca. 10 pages

Prüfungssprache: Englisch

Erstablingung: SS 2022, 1. Wdh.: WS 2022/2023

1. Prüfer: Andreas Bück

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**Bemerkungen:**

Required: Mathematics 1 - 3, Statistics

Recommended: Thermodynamics and Heat and Mass Transfer, Fluid dynamics, Chemical Reaction Engineering, Bio Process Engineering