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

Erstablegung: SS 2022, 1. Wdh.: WS 2022/2023
1. Prüfer: Andreas Bück

Laboratory course: Process control and safety (Prüfungsnummer: 29012)
Studienleistung, Praktikumsleistung
weitere Erläuterungen:
Lab protocal ca. 10 pages
Prüfungssprache: Englisch

Erstablegung: SS 2022, 1. Wdh.: WS 2022/2023
1. Prüfer: Andreas Bück

Bemerkungen:

Required: Mathematics 1 - 3, Statistics
Recommended: Thermodynamics and Heat and Mass Transfer, Fluid dynamics, Chemical Reaction Engineering, Bio Process Engineering