

Syllabus: “Biomedical Devices Principles (Bioinstrumentation)”

International School, Winter Semester 2022/23

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(a) Inhalt und Ansatz | Content and Approach

- The course is intended for students of the faculty of electrical engineering, and exchange students of all faculties.
- Teaching methods are oriented towards the project-based learning methodology. The students will have to develop practical solutions to some proposed projects and present them in a seminar modality after each project is finished.
- The course will be offered as an in-person session.
- Students are required to at least have an advanced level of English to follow the lessons and have knowledge about the fundamentals of electronics and programming.
- Completion of assignments and regular attendance (at least 80% of all sessions) is required for exam admission.
- For the successful completion of the course, the student will be awarded 4 ECTS. Therefore, students should be prepared to spend a considerable time working with the study content.
- Participants are required to register for the course via Stud.IP, where all teaching resources will be made available.

(b) Qualifikationsziele | Learning Objectives

- After successfully studying Bioinstrumentation, students will be able to:
 - Comprehend the generalised bioinstrumentation device structure as a starting point to develop a specific biomedical service
 - Develop a specific basic biomedical device for diagnosis or therapeutic purposes
- In this course the students will learn:
 - General concepts of bioinstrumentation
 - Body temperature and BMI bioinstrumentation device design
 - Electrocardiography bioinstrumentation device design
 - Electromyography bioinstrumentation device design
 - Pulse oximeter bioinstrumentation device design
 - Physiological coherence bioinstrumentation device design

(c) Kursstruktur | Course Structure

- The class will be held in lectures and lab hours. The times and rooms can be found in the course profile of StudIP.
- Students are required to have a notebook design for recording any single step in the design process.

(d) Studien- und Prüfungsleistungen | Course Assessment

- **The exam was already written in December 2022! The exam can't be taken again in February 2023! Only students who already had taken the exam in December will be able to gain a grade and the ECTS points for the course!**
- The exam will take form of in-class projects and the presentation of them
 - The registered date for the exam is 03.02.2023. Which is not the date the exam will be written, but the date the student will have to register to get a mark on their transcript.
- The grading is based on: Project completeness, participation in the lecture, and the recordings in the notebook design
 - A grading guide per project can be found in Stud.IP.
- For the successful completion of the course, the students will be awarded 4 ECTS.