

## Information System Design (summer term 2025, Merito WAW)

Teacher: Wojciech Mościbrodzki

Evaluation: you will be working in project teams (5 persons max), one person from the team should stay in touch with me by email ([w.moscibrodzki@gmail.com](mailto:w.moscibrodzki@gmail.com)). Your work will be evaluated on the basis of your documentation and final presentation of the project.

Attendance: **NOT MANDATORY** (but feel free to visit if you want to discuss anything)

Project Scope: Your goal is to prepare **documentation and prototypes** for the small Clinic/Hospital digitalization. See: deliverables and deadlines below.

Project Description:

You are tasked with analyzing, designing, implementing, and deploying a software system for a small medical clinic. The clinic employs around 30 contract-based doctors of various specializations (e.g., general practitioners, pediatricians, cardiologists, dermatologists, orthopedists) who provide medical services in several examination rooms. Some rooms are designated for general medicine, while others are specialized. Additionally, the clinic employs nurses and auxiliary staff (e.g., receptionists, administrative personnel, and medical assistants).

The clinic currently operates using manual processes, including paper-based patient records, scheduling via telephone or in-person appointments, and paper-based documentation for patient medical histories and treatment notes.

System Functionalities Required:

1. **Staff and Shift Management:** Creation and management of medical staff profiles (doctors, nurses, auxiliary personnel) with relevant personal and professional information (specialization, availability, contact details), Scheduling of shifts, including daily and weekly rosters, covering doctors, nurses, and administrative personnel, Management and tracking of staff availability, absences, vacations, and substitutions.
2. **Patient Registration and Appointment Management:** Patient registration module to handle personal data (name, contact information, insurance details, patient identifiers). Scheduling, modification, and cancellation of patient appointments. Calendar view of appointments organized by doctor, specialty, date, and examination room. Automatic notifications (email/SMS reminders) to patients regarding upcoming appointments, cancellations, or changes.
3. **Electronic Medical Records (EMR):** Secure digital documentation of patient visits, treatments, and prescribed medications. Management of medical history data, diagnoses, test results, and doctor's notes. Easy access and retrieval of patient medical records, including search functionalities by patient name, date of birth, or visit date.
4. **Examination Room Management:** Management of multiple examination rooms (both general and specialized), including room assignment to medical staff. Scheduling of

room usage, ensuring no conflicts occur during appointments. Room occupancy status reporting.

5. Reporting and Analytics: Generation of periodic reports on clinic performance (e.g., number of appointments per doctor, room utilization, staff workloads). Ability to create and export customized reports (e.g., patient visits per specialty, daily/monthly revenue, patient waiting time statistics).

Deliverables and Deadlines (send as pdf files to [w.moscibrodzki@gmail.com](mailto:w.moscibrodzki@gmail.com)).

1. Detailed **System Analysis Documentation** (including use-case diagrams, system requirements specification, and workflow diagrams) – DEADLINE: 30.03.2025
2. **System Design Documentation** (including system architecture, entity-relationship diagrams, interface designs, and database schema) – DEADLINE 30.04.2025
3. Implementation of a **functional prototype** demonstrating key functionalities – presentation during last meeting 27.05.2025.

When sending emails please every time use:

Address: [w.moscibrodzki@gmail.com](mailto:w.moscibrodzki@gmail.com)

Subject: IT SYSTEM DESIGN

In the message body: your name and student ID