

Mini-Project **Electronic Health Record**

An electronic health record (EHR) is an information system that stores medical data for a person. The data is structured on medical encounters with doctors and on health issues which can be chronic or acute diseases. A medical encounter can relate to one or more issues. At each medical encounter health services are performed, which can be referrals to other doctors, prescriptions or measurements (eg. blood pressure).

The data in the system can be viewed by the patient or by specified doctors. Each doctor can view only the services related to the health issues that he is allowed to. The access list that determines what doctor is allowed to see what health issue is specified by the patient.

Each time a patient makes a visit to a doctor a new medical encounter is added in the EHR. After the consultation the services are added to the medical encounter. All the modifications in the EHR must be digitally signed using the individual digital signature of the doctor. It is possible to mark past services as incorrect (wrong prescriptions or measurements). In this case they are not deleted (for future record) but only marked.

In the case of a legal investigation, the attorney investigating the case, can get read access on demand to the EHR.

The EHR system is interoperable with the information systems of the pharmacies. If a patient has a new prescription added in the EHR, he can go to a pharmacy, identify himself with his ID card and the pharmacist can view the prescription. If the patient takes the medicine, the pharmacist can mark the prescription as complete in the EHR.

Work Packages:

A. WP1-Systems Engineering Methodology:

A1 Partition the current system according the processing and the processor views in a System Modeling Template

A.2 Draw the Architecture Flow Context Diagram for the system

B. WP2-Structured Methodology:

B.1. Define the environmental and behavioral model for the information system

B.2. Starting from the level 3 DFD, propose a design model based on transformational and/or transactional flows.

C. WP3-Enterprise Wide Methodology:

C.1. Draw the activity diagrams for the main business process

C.2. Map the enterprise organigram and specify the business functions of each division.

D. WP4-Object-Oriented Methodology:

D.1. Draw the domain model for the business.

D.2. Draw the Business Use Case Diagram

D.3. Interaction diagrams for the main business scenarios

D.4. For the software use case of **TBD** write the use case description, system sequence diagram and describe an operation using an operation contract.

D.5. Propose a software architecture for the system, arguing for the design decisions you have made.

D.6 Draw the statechart for a **TBD** object lifecycle.