

Real Time Systems

Instructor: Prof. Dimitris Maroulis

Semester: 3rd

Field: Information Technology in Medicine and Biology

Introduction and basic principles of real-time systems (definitions, requirements, properties, temporal identity, predictability-determinism, reliability). Techniques and tools for development, analysis, design. Dat

a flow diagrams (flow, events, transformations, terminators, control).

State transition diagrams (states, transitions, conditions, operations, event storing).

ER Diagrams (entities, relationships, objects, rules).

Accompanying documentation, general framework diagrams

, events list and behavioral patterns.

General requirements, controls.

Modeling-
architecture of
processors (specifications, evaluation, requirements
assessment
, multithreading , hyperthreading, interfaces, control processes).

Real time operating systems.

Software modeling (architecture, processes, parallelism, security, evaluation).

Modern architecture and advanced methods for data collection in real-time biomedical systems.

Development of software to
support
real-time biomedical applications and analyze and optimize performance.

Network and internet real-time applications in telemedicine. Presentation of "real"
applications with emphasis on collecting, processing and analysing biomedical data in order to
assist medical diagnosis.