

**COMPETENCY 1
FOR HEALTH IT
ENGINEERS**

Mastering healthcare system uses

Workplace situations

Development trajectories

Formal assessment of user needs for the design of a healthcare system

- Organize joint development work with healthcare professionals and patients.
- Identify and analyze uses in cooperation with healthcare professionals.
- Identify and analyze uses in cooperation with patients and users.
- Incorporate regulatory, organizational, and quality-assurance requirements.
- Describe use scenarios to designers.

Analysis of use-related requirements for the development and maintenance of a healthcare system

- Ensure joint development with healthcare professionals and patients.
- Check that use scenarios are factored in throughout the development lifecycle.
- Incorporate socioeconomic requirements relative to healthcare systems.
- Follow up on functional implementation and training.

Assistance selecting a specific solution for a healthcare system

- Factor in the needs and requirements assessed.
- Draw up specifications or a written needs analysis.
- Write request for proposals.
- Analyze proposals submitted.

**COMPETENCY 2
FOR HEALTH IT
ENGINEERS**

**Developing and implementing information systems
(healthcare, and clinical and pre-clinical research)
medical devices**

Workplace situations

Development trajectories

**Implementation of a healthcare
information system**

Draw up specifications for the solution.

Design the healthcare information system.

Implement and track a quality-assurance plan (ITIL, CMMI, ISO 20000).

Implement integration and validation testing.

**The development
of a medical device**

Analyze an existing technology (sensor, switch, or physical system).

Develop processing and decision-making algorithms (data extraction and fusion).

Ensure connectivity and interoperability.

Implement and track a quality-assurance plan (ISO 13485, EN 62304).

Incorporate evaluation issues (expected level of healthcare service, level of healthcare service delivered).

**Support for innovation in medical
technology**

Conduct technological intelligence encompassing basic and applied research.

Factor in the broader implications of new systems.

Take a proactive approach (pre-clinical) and liaise with regulatory affairs specialists (healthcare, clinical research, and medical devices).

Incorporate evaluation issues (expected level of healthcare service, level of healthcare service delivered).

Demonstrate knowledge of creativity tools and utilize them appropriately.

Factor in environmental and sustainable development issues.

Contribute to the development of innovative prototypes.

**COMPETENCY 3
FOR HEALTH IT
ENGINEERS**

**Managing and interacting
with healthcare project management (IT, medical
devices, clinical and pre-clinical research)**

Workplace situations

Development trajectories

**Implementation and integration of
solutions in healthcare information
systems.**

Analyze the alignment between specific needs and a generic solution.

Provide assistance configuring solutions for a healthcare facility or clinical research organization.

Deliver training on the target solution.

Manage organizational change resulting from the solution in the facility in which it is implemented.

Interoperability management

Assess feasibility.

Develop or make adjustments to the interconnection architecture.

Ensure compliance with standards (data formats HL7, DICOM, EDF, GPIB, IEEE, etc.).

**Integration of a medical device into a
healthcare, clinical research, or pre-
clinical research system**

Assess the suitability of the technology chosen.

Draw up and analyze functional specifications.

Provide assistance implementing interfaces.

Ensure that the information generated is factored in.

**Scheduling, tracking, and management
of a complex project**

Demonstrate knowledge of scheduling and management tools.

Ensure continuous improvement.

**COMPETENCY 4
FOR HEALTH IT
ENGINEERS**

**Demonstrating knowledge of the socioeconomic
and legal context specific to healthcare**

Workplace situations

Development trajectories

**Recommendations for improvements
to a healthcare system based
on health and sociodemographic data**

Analyze and inventory patient flows and the associated data flows.

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Describe and analyze the organization (critical performance review).

**Assistance implementing
a healthcare network or new IS**

Identify, coordinate, and communicate with all stakeholders.

Inventory potential technology bricks.

Factor in the societal impacts of the planned activity.

Ensure joint development with decision-makers.

**Management of a
socioeconomic activity**

Understand and factor in profitability targets for companies.

Factor in legal and regulatory requirements and ethical responsibilities.

Coordinate a team comprised of men and women in an international, multicultural, multidisciplinary environment.

Demonstrate an understanding of the needs and requirements of a market or group of customers.

**COMPETENCY 5
FOR HEALTH IT
ENGINEERS**

Communicating and promoting projects

Workplace situations

Development trajectories

Formulation and extraction of relevant information from complex concepts and ideas

Demonstrate organized, structured thinking.

Explain complex situations so that they are easy to understand.

Presentation of reports and recommendations

Present information orally and in writing clearly in at least French and English.

Demonstrate active listening.

Use persuasive discourse to obtain buy-in for an idea or project.

Career trajectory

Demonstrate openness to new cultural environments.

Develop a career plan.

Build and expand a professional network.