



IMAGERIES MÉDICALES

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Lecturers: **Emmanuelle LAURENCEAU, Christelle YEROMONAHOS**

| Lecturers : 6 | TC : 0.0 | PW : 9 | Autonomy : 6 | Study : 8 | Project : 0.0 | Language : FR

Objectives

Through this course, 3 main imaging and image processing techniques will be discussed: electronic cryo-tomography, X-ray imaging and ultrasound imaging. Concrete examples of image reconstruction and modeling as well as manipulations on devices (RX, US) will help to understand the complete chain of image formation and its interpretation.

Keywords :

Programme

Course (6h):

- Principle of electronic cryo-tomography
- Principle of X-ray imaging
- Principle of Ultra-sound imaging

Practical work (9h): 1 practical to choose on one of the 3 imaging techniques

Learning outcomes

- Understand the scientific challenges of medical imaging in terms of information extraction
- Understand the difficulties associated with reconstructing images from physical measurements and know the methods to overcome them
- Know the signal processing techniques used in ultrasound imaging

Independent study

Objectifs :

- Méthodes :
- Processing of electronic cryo-tomography images from free software (eman2 and Jsubtomo)
 - Bibliographic studies
 - Processing of data acquired on a research ultrasound system

Core texts

Assessment

75% knowledge (practical report), 25% know-how (oral presentation)