Study of advanced image processing; mathematical imaging. Development of image-processing software and prototyping in JAVA; application to real-world examples in industrial vision and biomedical imaging.

Content

- **Deconvolution.** Inverse and Wiener filtering. Matrix formulations. Iterative techniques (ART).

Learning Prerequisites

**Required courses**

Image Processing I

**Recommended courses**

Signals and Systems I & II, linear algebra, analysis

**Important concepts to start the course**

Basic image processing and related analytical tools (Fourier transform, z-tranform, etc.)

Learning Outcomes

By the end of the course, the student must be able to:
• Construct interpolation models and continuous-discrete representations
• Analyze image transforms
• Design image-reconstruction algorithms
• Formalize multiresolution representations using wavelets
• Design deconvolution algorithms
• Perform image analysis and feature extraction
• Design image-processing software (plugins)
• Synthesize steerable filters

Transversal skills

• Plan and carry out activities in a way which makes optimal use of available time and other resources.
• Manage priorities.
• Access and evaluate appropriate sources of information.
• Use both general and domain specific IT resources and tools