Course structure

1. General introduction: Aims concept strategy

2. Transmission imaging. Radiography
   - 2.1. General introduction and history
   - 2.2. Interaction of radiation with matter
   - 2.3. Image parameters
   - 2.4. Image processing
   - 2.5. Applications

3. 3D neutron imaging. Tomography
   - 3.1. General introduction and history
   - 3.2. Theoretical background
   - 3.3. Artefacts and corrections
   - 3.4. Software packages for reconstruction and visualization
   - 3.5. Examples and applications of neutron tomography

4. Non-conventional neutron imaging techniques
   - 4.1. Energy-selective imaging
   - 4.2. Phase and dark-field contrast
   - 4.3. Imaging with polarized neutrons

5. Overview schema and guidance

New: Methods guidance
New: Dynamic imaging

6. Dynamic and stroboscopic neutron imaging

7. Instrumentation for neutron imaging
   - 7.1. Sources of neutron beams
   - 7.2. Systems for neutron transport
   - 7.3. Neutron detectors
   - 7.4. Sample manipulators and environment

8. Neutron imaging instrument. Design and characteristics
   - 8.1. Beam characterization
   - 8.2. Beam preparation
   - 8.3. Detector systems related to the beam characteristics
   - 8.4. Time-of-Flight type of instrument
   - 8.5. Instruments using a neutron guide
   - 8.6. Shielding and infrastructure
   - 8.7. Examples of different types of instruments

9. X-ray Imaging and data fusion

10. Applications
    - 10.1. Cultural heritage and palaeontology
    - 10.2. Renewable energy sources and storage systems
    - 10.3. Materials sciences
    - 10.4. Scientific applications
    - 10.5. Industrial applications
    - 10.6. Other applications

New: Nuclear applications