### Basic Imaging Concepts

**Module title**: Basic Imaging Concepts  
**Abbreviation**: 11-BIC-Int-201-m01

<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tr>
<td>Managing Director of the Institute of Applied Physics</td>
<td>Faculty of Physics and Astronomy</td>
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**ECTS** | **Method of grading** | **Duration** | **Module level** | **Other prerequisites** |
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<td>6</td>
<td>Only after succ. compl. of module(s)</td>
<td>1 semester</td>
<td>graduate</td>
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**Contents**

Introduction to generic imaging concepts and physical imaging methods covering the most central aspects across all imaging modalities, including 1) the concept of Fourier imaging, 2) tomography (Radon-Transformation, central-slice-theorem), 3) the system theory of imaging systems, and 4) issues of image quality (point-spread function, modulation transfer function, spatial resolution, contrast, noise). During the course different advanced methods for image acquisition will be covered and a comprehensive overview of modern imaging modalities in biomedicine, material science and astrophysics will be given.

**Intended learning outcomes**

The students know the physical foundations of imaging methods and their applications. They understand the principles of image formation and are able to explain the different methods and to interpret simple images.

**Courses**

V (3) + R (1)  
Module taught in: English

**Method of assessment**

(type, scope, language — if other than German)  
If a written examination was chosen as method of assessment, this may be changed and assessment may instead take the form of an oral examination of one candidate each or an oral examination in groups. If the method of assessment is changed, the lecturer must inform students about this by four weeks prior to the original examination date at the latest.

Language of assessment: English

### Additional information

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### Referred to in LPO I

(examination regulations for teaching-degree programmes)

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### Module appears in

Master’s degree (1 major) Physics International (2020)