### Module description

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetism</td>
<td>11-MAG-161-m01</td>
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<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing Director</td>
<td>Faculty of Physics and Astronomy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ECTS</th>
<th>Method of grading</th>
<th>Only after succ. compl. of module(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>numerical grade</td>
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<table>
<thead>
<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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</tbody>
</table>

### Contents

Dia- and paramagnetism, exchange interaction, ferromagnetism, antiferromagnetism, anisotropy, domain structure, nanomagnetism, superparamagnetism, experimental methods to measure magnetic properties, Kondo effect.

### Intended learning outcomes

The students know basic terms, concepts and phenomena of magnetism and measuring methods for magnetic experiments; they are skilled in simple model building and in the formulation of mathematical-physical approaches and are able to apply them to tasks in the stated areas; they have competencies in independently working on problems of these areas; they are able to evaluate the accuracy of observations and analyses.

### Courses

<table>
<thead>
<tr>
<th>Type, number of weekly contact hours, language — if other than German</th>
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</thead>
<tbody>
<tr>
<td>V (3) + R (1)</td>
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Module taught in: German or English

### Method of assessment

written examination (approx. 90 to 120 minutes) or oral examination of one candidate each (approx. 30 minutes) or oral examination in groups (groups of 2, approx. 30 minutes per candidate) or project report (approx. 8 to 10 pages) or presentation/talk (approx. 30 minutes).  
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.  
Assessment offered: In the semester in which the course is offered and in the subsequent semester  
Language of assessment: German and/or English

### Allocation of places

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### Additional information

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### Referred to in LPO I (examination regulations for teaching-degree programmes)

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### Module appears in

<table>
<thead>
<tr>
<th>Program</th>
<th>Year</th>
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<tbody>
<tr>
<td>Master's degree (1 major)</td>
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<tr>
<td>Mathematics (2016)</td>
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<tr>
<td>Physics (2016)</td>
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<tr>
<td>Nanostructure Technology</td>
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<tr>
<td>(2016)</td>
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<tr>
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<tr>
<td>Computational Mathematics</td>
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<tr>
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<tr>
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<tr>
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<tr>
<td>Supplementary course</td>
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<tr>
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