# Fundamentals of Semiconductor Physics

**Module title**: Fundamentals of Semiconductor Physics  
**Abbreviation**: 11-HLP-152-m01

<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>Managing Director of the Institute of Applied Physics</td>
<td>Faculty of Physics and Astronomy</td>
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<tr>
<th>ECTS</th>
<th>Method of grading</th>
<th>Only after succ. compl. of module(s)</th>
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<tbody>
<tr>
<td>6</td>
<td>numerical grade</td>
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<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
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<tbody>
<tr>
<td>1 semester</td>
<td>undergraduate</td>
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## Contents
1. Symmetry properties  
2. Crystal formation and electronic band structure  
3. Optical excitations and their coupling effects  
4. Electron-phonon coupling  
5. Temperature-dependent transport properties  
6. (Semi-)magnetic semiconductors

## Intended learning outcomes
The students are familiar with the principles of Semiconductor Physics. They understand the structure of semiconductors and know their physical properties and effects. They know important applications.

## Courses
**Type, number of weekly contact hours, language** — if other than German:  
V (3) + R (1)  
Module taught in: German or English

## Method of assessment
**Type, scope, language** — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus:  
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: Once a year, summer 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
**Bachelor’ degree (1 major) Physics (2015)**  
**Bachelor’ degree (1 major) Nanostructure Technology (2015)**