# Module Description

## Interactive Computer Graphics

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Interactive Computer Graphics</td>
<td>10-I-ICG-152-m01</td>
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</table>

## Module Coordinator

holder of the Chair of Computer Science IX

## Module Offered by

Institute of Computer Science

<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>5</td>
<td>numerical grade</td>
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## Duration

1 semester

## Module Level

graduate

## Other Prerequisites

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## Contents

Computer graphics studies methods for digitally synthesising and manipulating visual content. This course specifically concentrates on interactive graphics with an additional focus on 3D graphics as a requirement for many contemporary as well as for novel human-computer interfaces and computer games. The course will cover topics about light and images, lighting models, data representations, mathematical formulations of movements, projection as well as texturing methods. Theoretical aspects of the steps involved in ray-tracing and the raster pipeline will be complemented by algorithmic approaches for interactive image syntheses using computer systems. Accompanying software solutions will utilise modern graphics packages and languages like OpenGL, GLSL and/or DirectX.

## Intended Learning Outcomes

At the end of the course, the students will have a broad understanding of the underlying theoretical models of computer graphics. They will be able to implement a prominent variety of these models, to build their own interactive graphics applications and to choose the right software tool for this task.

## Courses

(type, number of weekly contact hours, language — if other than German)

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## 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. 60 to 120 minutes).

If announced by the lecturer at the beginning of the course, the written examination may be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups of 2 candidates (approx. 15 minutes per candidate).

Language of assessment: German and/or English creditable for bonus

## Allocation of Places

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## Additional Information

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

§ 22 II Nr. 3b

## Module Appears In

First state examination for the teaching degree Gymnasium Computer Science (2015)

Master's teaching degree Gymnasium MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)

Supplementary course MINT Teacher Education PLUS, Elite Network Bavaria (ENB) (2016)