## Title
Introduction to Graphics / Shader Programming

## Cluster Title PO 07
To be filed by focus managers

## Cluster Title PO 2012
To be filed by focus managers

## Cluster Title PO 2014
Game Development

### Date of first course event / first organizational meeting with students
25.9.21 10:00

### kind of room if not indicated above
online - Seminarraum - Labor

### Course Data
<table>
<thead>
<tr>
<th>credit points</th>
<th>5 credit points</th>
</tr>
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<tbody>
<tr>
<td>workload/semester</td>
<td>125-150 h</td>
</tr>
<tr>
<td>presence/week on average**</td>
<td>4 SWS</td>
</tr>
<tr>
<td>Group size according to cnw</td>
<td>8 students</td>
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### weekday of course
Monday

### frequency of course-events
weekly - bi-weekly - blocked

### prospective timeframe****
(Block = 90 min)
- Block 1: 8:30
- Block 2: 10:15
- Block 3: 12:00
- Block 4: 14:15
- Block 5: 16:00
- Block 6: 17:45

### course language
English - German

### suitable for students of course/focus
DM - AG - IMD - MP - SMP - ER - OJ/WJ/OK - KMI

### Content(s): (check one or more)
- Design
- Informatics / Technology - Economy / Business - Culture

### Time frame in case of blocked event
Starts at 10 am until 1 pm !!!!!

## Course Portrait
Lecturer(s) Name(s)
Stephan Jacob

Lecturer(s) email
stephan.jacob@h-da.de

Contact Prof. @ fbmd
Tilmann.kohlhaase@h-da.de

Teaching Method
lecture - lecture + seminar - seminar - project

Course Contents
The elective is targeting Tech Artists and Programmers. Shaders are cool and shiny, but sadly only few people actually know how they work, even though they are not too hard to understand. In this elective we'll cover shader development from the ground up. After a short introduction to the Render Pipeline and GPUs and what makes them different to
regular CPUs, we’ll dive into the world of shader programming. In addition to some groundwork and the anatomy of shaders, this will include own shaders in Unity for things like basic lighting effects, toon shading, post processing, water, and many more.

Disclaimer: In this course we will write actual HLSL/cG shaders, we will not be using any node based shader creation tool. Both Programmers and Artists are welcome, but a background in coding will be very useful, also shader code needs more of a mathematical understanding than gameplay code. If you call math and coding your friend, you will have no problems. The elective is therefore targeted towards Tech Artists and programmers. We will be using the Unity Shader Framework, so you don’t have to worry about in depth OpenGL or DirectX C++ code.

<table>
<thead>
<tr>
<th>Type of Exam</th>
<th>homework</th>
<th>work+presentation</th>
<th>paper</th>
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### Milestones if known

### Examination

<table>
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<tr>
<th>Examination / Presentation</th>
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### End of Elective

**Suitability**

- beginner course
- intermediate course
- advanced course

### Preconditions

### Info about lecturer (especially if guest)

### Other information

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* According to our examination law, the course titles have to be matched to a given catalogue with common course titles. This title will appear in the Transcript of Record and the Bachelor Certificate. Field has to be filed by Focus Managers, all clusters can be found below

** The official presence-time is 3 SWS for the whole semester. As the elective period is condensed to 12 weeks instead of 16 weeks, the presence time for the electives is 4 SWS.

*** Courses and focal points: dm = Digital Media , oj = Online Journalismus; wj = Wissenschaftsjournalismus, blank field = please insert appropriate course. *(check as many as apply)*

**** Block 1 = 8.30 - 10.00 Uhr, Block 2 = 10.15 - 11:45 Uhr, Block 3 = 12.00 - 13.30 Uhr, Block 4 = 14.15 - 15.45 Uhr, Block 5 = 16.00 - 17.30 Uhr, Block 6 = 17.45 - 19.15 Uhr

***** In case that the course does not start in the first week 15.10.2018 there has to be a first organisational meeting to finalize the application process

Elective Start: 2.11.2020

Christmas 21.12.-9.1.21 (due to the short semester there might be some lecturing during this period)

Electives End 12.2.2021

Please upload in Moodle Course!