# PROG H4204: Visual Effects Programming

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| **Module Title:** | Visual Effects Programming |
| **Language of Instruction:** | English |

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| **Credits:** | 10 |

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| **NFQ Level:** | 8 |

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| **Module Delivered In** | No Programmes |

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| **Teaching & Learning Strategies:** | As well as traditional lectures students will undertake various laboratory exercises implementing visual effect techniques utilising appropriate API. They will be expected to participate in class on the materials covered. A blended teaching strategy will be used where traditional lectures are augmented with online resources. The learning will be reinforced and extended using supervised computer lab sessions where the material is applied. |

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| **Module Aim:** | To deliver an understanding of the design, production of Visual Effects within games and user interfaces. To deliver an understanding of the principles and mechanisms of per-rendered and real time visual effects rendering. To provide the practical skills necessary to render interactive, realistic visual effects incorporating lighting & material techniques |

| **Learning Outcomes** | |
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| *On successful completion of this module the learner should be able to:* | |
| LO1 | Demonstrate an understanding of the theory behind visual effect techniques |
| LO2 | Implement visual effect techniques to enhance realism and fidelity |
| LO3 | Understand and implement visual effects within 2D and 3D space. |
| LO4 | Render scenes (pre-render and real-time) using standard visual effect libraries |
| LO5 | Produce showcase visual effects for digital games and user interfaces |

| **Pre-requisite learning** |
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| ***Module Recommendations***<br>*This is prior learning (or a practical skill) that is recommended before enrolment in this module.* |
| No recommendations listed |
| ***Incompatible Modules***<br>*These are modules which have learning outcomes that are too similar to the learning outcomes of this module.* |
| No incompatible modules listed |
| ***Co-requisite Modules*** |
| No Co-requisite modules listed |
| ***Requirements***<br>*This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.* |
| No requirements listed |

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## Module Content & Assessment

| Indicative Content |
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| **3D Graphics, Synthetic Camera**<br>Perspective Projection, Pipeline, Polygon Meshes |
| **Scene Description**<br>Mesh Representation, File structures, Scene Graph |
| **Scene Rendering**<br>Clipping, HSR, Polygon & Line Filling, Anti-aliasing, texturing |
| **Advanced visual effect techniques**<br>Lighting, post processing, normal maps, shader programming |
| **Visual Effects Scripting**<br>File processing, conversion and composition techniques, geometry, voxels and particles |
| **Tools & Assets**<br>Visual effects content pipeline, shader editors |

| Assessment Breakdown | % |
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| Continuous Assessment | 10.00% |
| Project | 40.00% |
| Practical | 10.00% |
| End of Module Formal Examination | 40.00% |

**Continuous Assessment**

| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
|---|---|---|---|---|
| Performance Evaluation | n/a | 1,2,3,4,5 | 10.00 | n/a |

**Project**

| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
|---|---|---|---|---|
| Project | A creative visual effects project. Students will work in a semi-autonomous fashion, implementing technical visual effects skills. | 4,5 | 40.00 | n/a |

**Practical**

| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
|---|---|---|---|---|
| Practical/Skills Evaluation | Exercises on visual effect production techniques to support project work | 2 | 10.00 | n/a |

**End of Module Formal Examination**

| *Assessment Type* | *Assessment Description* | *Outcome addressed* | *% of total* | *Assessment Date* |
|---|---|---|---|---|
| Formal Exam | End of year exam | 1,2,4,5 | 40.00 | End-of-Semester |

**SETU Carlow Campus reserves the right to alter the nature and timings of assessment**

# PROG H4204: Visual Effects Programming

## Module Workload

| Workload: Full Time | | |
|---|---|---|
| *Workload Type* | *Frequency* | *Average Weekly Learner Workload* |
| Lecture | Every Week | 1.00 |
| Practicals | Every Week | 2.00 |
| Lecturer Supervised Learning | Every Week | 1.00 |
| Independent Learning Time | Every Week | 2.00 |
| | Total Hours | 6.00 |