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| IMAT2301 : Progressive Game Engines |
| Level 5  Full – Time  Leicester Campus |
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| **Module Leader: Carlos Bott** |
| **16/01/2023** |



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**NOTE: This handbook is correct at the time of writing and may be subject to change. Throughout your studies, to ensure you have the most up to date information, you should always consult the online version of this handbook held on Blackboard.**

# Module Handbook: Session 2022-2023

**Welcome**

Welcome to the second-year students on the course who will be studying the Progressive Games Engine module. This module has two themes that can be broadly categorised as- (i) an introduction to visual node-based scripting, and to (ii) create, design, implement and deploy a Windows game using the Unreal Engine.

1. **Module Overview**

Students will have already encountered the Unity game engine in their first year and the previous

semester as part of the module IMAT2911, while developing their mobile game. However, Unreal is

the industry standard for AAA titles, thus Unreal is of at least equal importance to Unity. As more and

more companies move towards Unity development for its cross-platform capabilities, it is still important to give students a foundation in Unreal development, as studying only one of these game engines will only provide graduates with half the development market.

This module represents the student’s first exposure to the Unreal Game Engine. Learning how to move quickly between Unity and Unreal is an important skill and so as part of the Games Production Programme, students learn both engines extensively, in terms of comparison and evaluation of performance from an early stage.

This module is a comprehensive overview of the Unreal engine in terms of interface and prototyping; thus, it will cover Blueprints and visual scripting, but not proper C++ Programming using the Unreal architecture.

This module also aims to give students a holistic, cross-sectional perspective on Unreal, by allowing

them to work simultaneously on content for the 3D modelling components of the 3D Modelling II

module, with a view to potentially incorporating it in the assessment for this module.

While students may to choose to create a deliverable with Unreal, they may also use the knowledge gained as part of their Mobile Games II module, IMAT2911 and to that end the content of these modules is structured to give the best co-ordination and systemisation of the respective material.

1. **Teaching Team**

Module Leader: Carlos Bott, G 6.60 [carlos.bott@dmu.ac.uk](mailto:carlos.bott@dmu.ac.uk)  
Tutor: Carlos Bott, [carlos.bott@dmu.ac.uk](mailto:carlos.bott@dmu.ac.uk)

1. **Module Learning Outcomes**
2. Establish a project in a game engine and apply knowledge of visual scripting techniques to save time and memory to create audio, materials, and lighting effects. (Unreal Game & GDD).
3. Effectively use materials in game engines (Phong, Blinn-Phong, Normal Mapping) and instrumental knowledge of the ‘Node’ system (UI systems for artists), complementing work from shader programming modules. (Unreal Game & GDD).
4. Apply the ‘Node’ systems to develop UI materials for artists to use and to communicate effectively with artists, in this context. (Unreal Game).
5. Be able to differentiate game engine tools in a continuum of other tools and technology, effectively discerning when and where to use visual scripting, where to use alternatives and how to instrumentally apply this knowledge. (Unreal Game & GDD)
6. **Main Topic Areas**

* Blueprints
* The Game Instance
* Data-Driven Design
* Gameplay Design
* Level Design
* Shader, Textures and Material Design
* Audio Design

1. **Learning Resources**

Each week there will be a lectures and labs starting week 16. The lecture notes will be posted onto Blackboard. The lab exercises will be placed onto Blackboard with supporting media materials. Attendance of the lectures, participation in the labs and interaction with your peer group are vital to your progression.

There is no required textbook for this module. However, you are encouraged to read around the topic area.

Unreal Learn <https://www.unrealengine.com/en-US/students> has good online tutorials covering many of the in-class topics.

1. **Software**

The development of the lab content will be carried out through the use of the Unreal Engine. A free version can downloaded from <https://www.unrealengine.com/en-US/>. A suggested version is Unreal Engine 4.27.2 as will be used within the labs. DO NOT USE Unreal 5.0 or 5.1. That DMU labs and DMU Horizon has Unreal 4.27.2 pre-installed.

1. **Assessment**

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| Unreal Game: 80% |
| Game Design Document (GDD): 20% |

The coursework is assessed on the design and implementation of a 3D Game using the Unreal Game Engine for the Windows PC platform. It looks at the unique considerations for Advanced 3D Game Development with the Unreal Engine and specifically games for Windows platforms.

**Assignment Set:** Friday 20h January 2023 (Week 16).

**Assignment Due:** Monday 24h April 2023 at 12:00pm (Noon) (Week 30).

Assessment for each coursework component is defined by a marking matrix. These are supplemented by generic mark descriptors which are implemented across the university. These can be found at: <http://www.dmu.ac.uk/documents/about-dmu-documents/quality-management-and-policy/academic-quality/learning-teaching-assessment/ug-mark-descriptors.pdf>

1. **Personal Tutor Scheme**

DMU provides all of its undergraduate students with a personal tutor who can be contacted regarding any general academic matter or personal concerns relating to life at DMU. The initial role of the tutor, along with the Student Advice Centre, is to help students make a smooth transition to university life.

New students can meet with their personal tutor during the first three weeks of study, either individually or within a group, and begin to develop a positive relationship with them.

**Each personal tutor will:**

1. Provide reliable and consistent advice and guidance
2. Provide regular opportunities for feedback on general academic progress and action-planning for students in relation to their academic progress
3. Meet with first year students within three weeks of the start of their studies and monitor their attendance so the faculty can encourage participation
4. Be proactive in arranging meetings with students
5. Support personal development planning by promoting reflective learning and ensuring students can review their own progress against action plans
6. Make systematic use of information about students’ overall progress, including utilising attendance records and academic performance profiles
7. Explain the options available regarding progression, as appropriate, including general advice on module choice
8. Know when it is appropriate to refer the student to another individual or service for specialist support or guidance
9. Advise students on the importance of career planning
10. Operate the faculty system and keep records in accordance with published faculty protocols
11. Advise the programme leader of any programme-related issues highlighted in tutorials, having regard for confidentiality in relation to individual tutees
12. **Academic Offences**

A number of rules and regulations apply to the activities of all DMU students including student discipline, payment of fees, examination regulations, extenuating circumstances, academic appeals, health and safety policy, and undergraduate and postgraduate scheme and regulations. An explanation of these rules can be found [here.](http://www.dmu.ac.uk/dmu-students/the-student-gateway/academic-support-office/student-regulations.aspx)