2024 / 25

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South East Technological University

Module Descriptor

Introduction to C++ for Games (Computing and Mathematics)

Introduction to C++ for Games (A10745)

Short Title: Introduction to C++ for Games
Department: Computing and Mathematics
Credits: 5 **Level:** Intermediate

Description of Module / Aims

This module will introduce the student to the fundamentals of programming for games using C++ and the Standard Template Library. Using procedural and object-oriented techniques the student will gain confidence in designing and developing small video games.

Programmes

		stage/semester/status
COMP-0669	BSc (Hons) in Applied Computing (WD_KACCM_B)	3 / 5 / E
COMP-0669	BSc (Hons) in Applied Computing (WD_KCOMP_B)	3 / 5 / E
COMP-0669	BSc (Hons) in Computer Science (WD_KCMSC_B)	3 / 5 / E

Indicative Content

- Types, variables and standard I/O
- Control statements
- The Standard Template Library (STL)
- Functions
- Pointers and references
- Objected oriented programming in C++
- Memory allocation
- Introduction to Cocos2d-x

Learning Outcomes

On successful completion of this module, a student will be able to:

1. Develop small games using standard C++ sequence, conditional and iterative control structures.
2. Create game objects and define the ways that they interact with each other through object-oriented programming.
3. Employ the STL to utilise frequently used classes and functions in the development of game programs.
4. Use pointers and memory allocation techniques to address, acquire and free memory as game programs require.

Learning and Teaching Methods

- Lectures and practical classes are used to deconstruct and analyse existing C++ games programmes and to plan, code and test solutions using a contemporary development environment.
- Self-directed learning activities will require students to will reflect upon the module materials, diagnose their learning needs and conduct research to satisfy these needs.

Learning Modes

Learning Type	F/T Hours	P/T Hours
Lecture	12	
Practical	48	
Independent Learning	75	

Assessment Methods

	Weighting	Outcomes Assessed
Continuous Assessment	100%	
Project	50%	1,2,3,4
Practical	50%	1,2,3

Assessment Criteria

<40%: Inability to understand, describe and discuss key concepts of game development using C++. Inability to apply appropriate techniques and/or tools to solve problems in a C++ for games knowledge domain.

40%–49%: Ability to understand, describe and discuss key concepts of game development using C++. Ability to apply appropriate techniques and/or tools to solve problems in a C++ for games knowledge domain.

50%–59%: Ability to analyse and classify key concepts game development using C++. Be able to employ a variety of specialised skills and pre selected tools or techniques within a C++ for games knowledge domain.

60%–69%: Ability to exercise appropriate judgement in applying the key concepts within game development using C++ and demonstrating an ability to be creative in designing and developing solutions to problems for a C++ for games knowledge domain using the appropriate skills, tools and/or techniques.

70%–100%: All the above to an excellent level. Ability to demonstrate mastery of specialised skills when developing C++ games, generalise key concepts and deploy solutions to a high standard for a range of complex, specialised and unforeseen problems through the use and modification of advanced skills, tools and/or techniques.

Supplementary Material(s)

- Dawson, M. *Beginning C++ Through Game Programming.* New York: Cengage Learning PTR, 2014.
- Engelbert, R. *Cocos2d-x by Example: Beginner's Guide.* Birmingham, England: Packt Publishing, 2015.

Requested Resources

- Room Type: Computer Lab