

## Liverpool John Moores University

Title: SOFTWARE DEVELOPMENT FOR COMPUTER FORENSICS  
Status: Definitive  
Code: **7104COMP** (121325)  
Version Start Date: 01-08-2016

Owning School/Faculty: Computer Science  
Teaching School/Faculty: Computer Science

Team	Leader
Brett Lempereur	Y

**Academic Level:** FHEQ7      **Credit Value:** 20      **Total Delivered Hours:** 36  
**Total Learning Hours:** 200      **Private Study:** 164

### Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	12
Tutorial	24

**Grading Basis:** 50 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Technology	AS1	Coursework - Design, Implement, and Test Software to Solve a Digital Forensic Challenge.	100	

### Aims

*The course will develop the skills of students to create scripts that address digital forensic needs. Students will consider real-world digital forensic problems and demonstrate the skills required to engineer applications that solve these problems from initial specification through to implementation and testing.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Explain the use of interpreted scripting languages in digital forensics.
- 2 Use functional and object-oriented principles to specify and design software applications for digital forensics.
- 3 Work individually to implement software designs that address digital forensic challenges using interpreted scripting languages.
- 4 Work individually to test and document interpreted scripting language applications.
- 5 Evaluate the use of functional and object-oriented development techniques using interpreted scripting languages in digital forensics.

## Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Software Development	1	2	3	4	5
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## Outline Syllabus

*Foundations of interpreted scripting languages.*

*Role of scripting within digital forensics.*

*Functional programming techniques - first-class functions, closures, lambda functions.*

*Containers and iteration - lists, maps, iterators, generators.*

*Classes and objects - what is a class, what is an object, object state.*

*Object interaction - method invocation, special methods, objects as parameters.*

*Interacting with the outside world - input and output, streams, network programming.*

*Accessing common file formats - structured markup, images, documents.*

*Database programming - database clients, querying data.*

*Reporting and visualisation - creating reports, generating visualisations.*

*Designing applications - analysis and design, agile software development, unit testing.*

*Case study - design and implementation of a chosen digital forensic application.*

*Advanced topics - concurrency and parallelism, cross-platform development, etc.*

## Learning Activities

Lectures will be accompanied by practical lab-sessions. Students will be required to work in small groups to complete tasks, thereby encouraging communication and projects management skills.

## Notes

The module lectures, tutorials and labs will be conducted with interpreted scripting languages, development environments, and libraries that are widely used within the

digital forensics community.