

### Summary Information

Module Code	7129COMP
Formal Module Title	Software Development with Java
Owning School	Computer Science and Mathematics
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

### Teaching Responsibility

LJMU Schools involved in Delivery
Computer Science and Mathematics

### Learning Methods

Learning Method Type	Hours
Lecture	11
Practical	22

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

### Aims and Outcomes

Aims	The course will develop the necessary skills for the development of object-oriented applications using the Java programming language. Students will work cooperatively in groups and demonstrate the skills required to engineer Java-based software applications from initial specification, through to implementation, testing and documentation.
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**After completing the module the student should be able to:**

**Learning Outcomes**

Code	Number	Description
MLO1	1	Explain the use of object-oriented principles in the design of software applications.
MLO2	2	Use advanced object-oriented principles to specify and design software applications.
MLO3	3	Implement, as part of a team, object-oriented designs using the Java programming language.
MLO4	4	Test and document, as part of a team, Java-based applications.
MLO5	5	Critically evaluate the use of object-oriented development techniques.

**Module Content**

Outline Syllabus	Foundations of object-orientation. Anatomy of Java classes – fields, constructors, methods. Objects and classes – what is an object, object state, objects as parameters. Object interaction – method invocation, objects calling objects. Designing classes – responsibility-driven design. Application structures – inheritance, subtyping, polymorphism. Abstraction techniques – simulation, abstract classes, interfaces. Handling errors – defensive programming, exceptions. Designing applications – analysis and design, class design, documentation, group cooperation. Case Study – design of a chosen application. Java-based user-interfaces – AWT and Swing APIs
Module Overview	
Additional Information	The module lectures, tutorials and labs will use the BLUEJ development tool, which is a GUI-based development aid loosely based on UML. The group coursework will be completed in groups of two students and appraisals will be used to assess individual student effort.

**Assessments**

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Portfolio	OO Design and Implementation	50	0	MLO1, MLO2
Artefacts	Software development	50	0	MLO3, MLO4, MLO5

**Module Contacts**

**Module Leader**

Contact Name	Applies to all offerings	Offerings
Martin Hanneghan	Yes	N/A

**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
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