

Liverpool John Moores University

Title: ADVANCED PROGRAMMING FOR BUSINESS
Status: Definitive
Code: **6505CP** (103589)
Version Start Date: 01-08-2013

Owning School/Faculty: Arts, Professional and Social Studies
Teaching School/Faculty: Dublin Business School

Team	Leader
Alistair Beere	Y

Academic Level: FHEQ6
Credit Value: 24.00
Total Delivered Hours: 77.00
Total Learning Hours: 240
Private Study: 163

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	50.000
Tutorial	25.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	Continuous Assessment	50.0	
Exam	AS2	Examination	50.0	2.00

Aims

To develop student ability to use advanced programming techniques incorporating advanced data structures and algorithms.

To expand and continue good programming practice, including interface design and comprehensive program testing and documentation.

To develop the student's knowledge of object-oriented programming.

To employ graphical user interfaces

Learning Outcomes

After completing the module the student should be able to:

- 1 Demonstrate advanced problem solving and programming concepts.
- 2 Demonstrate knowledge of advanced data structures and algorithms structures.
- 3 Design, document, test and implement advanced object-oriented programs.
- 4 Design and construct graphical user interfaces.
- 5 Construct program and test documentation.

Learning Outcomes of Assessments

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

CONTINUOUS ASSESSMENT	1	3	4	5
EXAM	1	2	4	

Outline Syllabus

. Data Structures and Algorithms.

Arrays (single and multi-dimensional); Advanced searching and sorting algorithms. Linked lists. Stacks and Queues.

2. Object-Oriented Programming.

Review of objects and classes. Using constructors. Methods. Get and Set methods. Abstraction, Polymorphism, Inheritance and Encapsulation. Use of the keyword this.

3. Use of Unified Modeling Language (UML) to graphically describe classes and objects.

4. Advanced String and Text I/O

Use the String class to process fixed strings. Use the Character class to process a single

character. String, StringBuilder and StringBuffer classes. Use of the File class. Use of the PrintWriter class. Serial and random access.

5. Handling Exceptions. Throwing Exceptions.

6. Advanced Object-oriented Programming.

Inheritance and Polymorphism. Develop subclasses from a superclass through inheritance. Use of the super keyword. Overriding and overloading. Polymorphism and dynamic binding. Use of the ArrayList.

7. GUI Basics

Distinguish between Swing and AWT. Create user interface using frames, panels and simple

GUI components. Use the FlowLayout, GridLayout, and BorderLayout managers. To create

image icon using the ImageIcon class.

Learning Activities

Lectures and tutorials.

References

Course Material	Book
Author	Gaddis, T.
Publishing Year	2013
Title	Starting Out with Java from Control Structures through Objects
Subtitle	
Edition	5th
Publisher	Pearson
ISBN	

Course Material	Book
Author	Liang, Y.D.
Publishing Year	2012
Title	Introduction to Java Programming
Subtitle	
Edition	8th
Publisher	Pearson
ISBN	

Course Material	Book
Author	Reges, S. & Stepp, M.
Publishing Year	2008
Title	Building Java Programs
Subtitle	
Edition	
Publisher	Addison
ISBN	

Course Material	Book
Author	Fowler, M.
Publishing Year	2003
Title	UML distilled
Subtitle	a brief guide to the standard object modeling language
Edition	3rd
Publisher	Addison-Wesley
ISBN	

Notes

The module is follow-on to Principles of Programming module.
The module introduces the learner to more advanced programming concepts in Java, especially in object-oriented programming using advanced algorithms and data structures.

