Liverpool John Moores University

Title:	PRINCIPLES OF PROGRAMMING
Status:	Definitive
Code:	**5505CP** (103547)
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:	FHEQ5	**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
Practical	25.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS2	Continuous Assessment	50.0	
Exam	AS3	Examination	50.0	2.00

Aims

To give learners the knowledge to demonstrate an understanding of fundamental programming concepts.
To allow learners to explore best practice in program design and establish principles of modern program design.
To give learners the ability to analyse object oriented design principles.
To provide learners with the tools to analyse, design and implement applications using UML.

To show learners how to build practical programming and problem solving skills by developing software-based solutions.

Learning Outcomes

After completing the module the student should be able to:

1	Demonstrate knowledge of core programming concepts.
2	Explain the characteristics and features of a program.
3	dentify object-oriented core principles.
4	Explain and apply UML modelling concepts.
5	Demonstrate competence in object-oriented languages to provide solutions to a number of business problems.

Learning Outcomes of Assessments

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

CONTINUOUS ASSESSMENT	1	4	5	
EXAM	1	2	3	4

Outline Syllabus

1. Programming a system. Computer system both Hardware and Software What type of programming languages. Compiling and running a program. Using an IDE. First program compiled and run.
2. Parts of a Program. Print and println methods. Variable and Literals. Primative Data types. Arithmetic Operators. Combined Assignment Operators. Conversion between Primitive Data types. Common Errors to Avoid
3. Named Constants and final. The String Class. Scope. Comments. Programming style. Reading Keyboard input. Dialog Boxes. Common Errors to Avoid.
4. Decision Structures. if statement. if-else. Nested if Statements. Logical Operators. Comparing String Objects. Variable declaration and scope. Conditional Operator. Common Errors to avoid.
5. Switch statement. System.out.println method. Creating Objects. The Decimal Format Class. Scanner class. Errors to avoid.
6. Loops and Files. Increment and Decrement Operators. while Loop.Using while Loop for Input Validation. do-while Loop.the For loop. Sentinel values. Nested Loops.Common Errors to avoid.
7. Break and continue Statement. Which loop to use. Introduction to File input and output. use of the Random class. Common Errors to Avoid.
8. Introduction to methods. Void methods and Value-Returning Methods. Calling a method. Hierarchical Method Calls. Passing arguments to methods. Passing Multiple Arguments. Arguments are passed by Value.
9. Passing Object References to a Method. Local variables and Methods. Local variables and Parameter values. Returning a value from a method. Returning a boolean value.
10. First look at classes. Object and Classes. Writing a simple class step by step.

Instance Fields and Methods. Constructors. Passing Objects as Arguments. Overloading methods and constructors.
11. Scope of Instance fields. Package and import Statements. Focus on Object Oriented Design. Finding the classes and their Responsibilities.
12. Introduction to Arrays. Processing Array Elements. Passing Arrays as Arguments to methods. Returning Arrays from methods. String Arrays. Arrays of Objects.

Learning Activities

Lectures and practicals.

References

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

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

Course Material	Book
Author	Savitch
Publishing Year	2008
Title	An introduction to problem solving and programming
Subtitle	
Edition	5th
Publisher	Pearson
ISBN	

Notes

In this module learners will focus on the essential and starting points in programming. Learners will be introduced to the fundamentals of data types, input and output, control structures, Methods and a basic introduction to classes. Learners

will build their practical skills be completing individual projects on an on-going basis.