CS1020 Java Programming Foundations (CB)

Level: 1 **Credits: 20** **Teaching Period: 1+2** **Module Tutor: Dr EF Elsworth**

Aims

This module lays the foundations for a sequence of modules that develop a systematic understanding of the principles, tools and techniques of software design and construction, together with associated practical capabilities of a calibre that will equip the student for substantial software lifecycle undertakings and offer a sound basis for future professional employment. Making use of the Java language and taking a practical apprenticeship approach, the module will acquaint the student with the fundamental concepts of software construction in an object-oriented framework and develop basic competence in applying those concepts in an introductory student-oriented software construction environment.

Content

In the context of an introduction based on objects, classes, methods and fields, and collections and iteration, but excluding inheritance and associated matters:

- Key elements of the Java language and their use in practical programming
- Object-oriented software concepts, development techniques and tools

Introduction to software engineering in the small: requirements, design, coding, testing, documentation, maintenance
Use of a computing environment: IDE, host operating environment, online resources
Extensive case studies

Teaching

Lectures: 22 hours (1 hour/week over Teaching Periods 1 and 2)
Tutorial classes: 22 hours (1 hour/week over Teaching Periods 1 and 2)
Practical classes: 22 hours (1 hour/week over Teaching Periods 1 and 2)

Assessment

Written exam: 60% (2 hours, May/June)
Test: 10% (1 hour, January)
Practical assignment 1: 6%
Practical assignment 2: 7%
Practical assignment 3: 7%
Online quizzes to be undertaken during scheduled practical classes: 10% (A minimum of 70% of the available quizzes must be completed to be eligible for full marks for this aspect)

Module outcomes

What the student should gain from successful completion of the module	*Teaching/Learning Methods*	*Assessment Methods*
Knowledge and Understanding		
The fundamental concepts used in object-oriented software and the manifestation of those concepts in the Java programming language The need for a disciplined approach to software development, including principled organisation, and systematic testing and documentation	Lectures and recommended reading	Test and exam
Intellectual Skills		
Analyse simple requirements expressed in English and reason about how those requirements can be met through modifications to existing Java code or construction of new code	Lectures, tutorial exercises, practical work in lab classes and individually	Test, exam and coursework
Professional/Subject-Specific Skills		
Within the context of an introductory subset of Java: • Read and understand the execution of code • With the aid of a compiler, write syntactically correct code • Test and document code • Use suitable diagrammatic notations based on UML	As above, plus exposure to and use of online Java resources	Test, exam and coursework
Transferable Skills		
Problem solving capabilities	Practical exercises	Coursework

Learning resources

Useful websites: www.bluej.org java.sun.com
Barnes & Kolling: Objects First with Java – A Practical Introduction Using BlueJ (fourth edition), Pearson Education, 2008
Horstmann: Java Concepts (fifth edition), Wiley, 2008

Other study requirements to take this module

None

Last update *27/8/2008*