UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Fundamentals of Programming
Module Code	BIC4010-B
Academic Year	2022/3
Credits	20
School	UoB International College
FHEQ Level	FHEQ Level 4

Contact Hours	
Type	Hours
Directed Study	140
Lectures	40
Practical Classes or Workshops	20

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 1
BDA	University of Bradford / Semester 2

Module Aims

Introduces those students to the concept of programming.

Enables students to become familiar with and use a programming language, Java, inconstructing simple programmes.

Allows students to deploy such programmes in solving practical problems.

Introduces students to the notion of coding and the adaptation of programmes to the particular requirements of organisations or businesses.

Introduces students to the language and related skills which allow a computing professional to develop and maintain appropriate, robust and secure information systems in the workplace.

Outline Syllabus

Problem solving techniques.

Issues around the capture of data, its handling and representation.

Construction of algorithms and their uses in solving logic problems such as the n-queens and the Towers of Hanoi.

Logical and computational thinking, Binary Trees.

Introduction to the principles and language of programming, using Java; fundamental programming techniques; constraints, selection, mathematical factors, characters, strings and arrays.

Object-oriented programming, supported by Java, abstraction, encapsulation,inheritance and polymorphism in software development.

GUI basics.

Workshop sessions to develop programming skills.

Construction of simple programmes to assist in solving practical, everyday problems.

Use of coding to enable programmes to operate to meet set requirements of an.organisation or business.

Introduction to big data analytics, Artificial Intelligence systems and machine learning.

The computing professional as 'translator', communicating technical concepts to non-specialist audiences in the workplace.

Learning Outcomes

Outcome Number	Description
01	Demonstrate an understanding of the principles of and language used in programming.
02	Demonstrate an understanding of data capture, handling and representation.
03	Construct and apply simple programmes in Java and evaluate their use in solving practical problems.
04	Explain how coding allows the adaptability of programmes in set situations.
05	Communicate/present technical concepts to non-specialist audiences.

Learning, Teaching and Assessment Strategy

Teaching and learning on the module can be divided up in the following ways:
40 hours in small classes using an interactive learning and teaching approach; tutor-led sessions are followed by whole class or group discussions.

20 hours of practical workshop sessions learning programming using Java in IT suite or computer lab

140 hours of directed learning - responding to ideas and information received and discussed in classes; further practical sessions; assignments, preparation for classes and assessments; independent learning.

Formative assessment takes place through the regular setting of assignments during the course, encouraging students to respond to and develop ideas and information conveyed in the classes and practical sessions. Tutors provide detailed and supportive feedback, encouraging students to reflect on their performance, their progress on the course to date and their strengths and weaknesses. The feedback and reflection are used to help students devise clearly expressed steps towards improvement.

Summative assessment consists of an interim test, sat about half-way through the module, and which covers basic problem-solving techniques. Towards the end of the module a programming exercise, using Java, is set as a final task.

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Mode of Assessment

Type	Method	Description	Weighting
Summative	Classroom test	Interim Test (1 Hr)	40%
Summative	Coursework - Written	Programming Exercise using Java	60%

Reading List

To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.
