BIC4010-B module descriptor	
Module Title	Fundamentals of Programming
Credit Level	20 credits (FHEQ Level 4)
Session	2026/7 academic year
BDA occurrence	Non Standard Year available at University of Bradford
BDB occurrence	Non Standard Year available at University of Bradford
BDA occurrence	Semester 2 available at University of Bradford

Transparency notice

This specification for module code BIC4010-B has been generated automatically in advance of the academic year 2026/7. Every effort has been made to ensure that the information is accurate at the time of publication, but changes permitted by our Student Contract Terms and Conditions could be made in the interval between publishing and commencement of teaching; where changes impact the terms and conditions of an applicant's or student's offer, these are communicated to them as soon as possible.

BIC4010-B module aims

Introduces those students to the concept of programming.

Enables students to become familiar with and use a programming language, Java, in constructing 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.

BIC4010-B module learning outcomes

No.	Students completing the module will be able to:
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.

BIC4010-B module 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.

For more information, visit the VLE (**Canvas**) page, go to our **Reading Lists webpage for this module** or search **https://bradford.rl.talis.com** for this module.

BIC4010-B module notional learning hours

- 140 hours Directed Study
- 40 hours Lectures
- 20 hours Practical Classes or Workshops

The overall expected hours may include contact time, scheduled learning activity, directed and independent study and any minimum expectations for placement learning. Most learning at the University of Bradford has some online content and sessions which are delivered fully by virtual means are labelled as "online".

BIC4010-B module learning, teaching and assessment

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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BIC4010-B mode of assessment			
Type	**Mode**	**Assessment description**	**Weight**
Summative	Examination - Closed Book	Interim Test (1 Hr)	40%
Summative	Coursework - Written	Programming Exercise using Java	60%

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