

## **CHK4070CM: Fundamentals of Business Programming**

<b>Module Level</b>	4
<b>Learning Credits</b>	20
<b>Assessment Credits</b>	15
<b>Total Student Study Hours</b>	150

### **Aims and Summary**

This module introduces the fundamentals of business programming and algorithm design that will underpin the technical and application content of undergraduate degree course based within the discipline of Information Technology for Business. Students taking the module will develop basic skills in programming by learning the core control structures and problem-solving strategies common to most business programming languages. They will apply these to a range of tasks and problems. The module will make students aware of professional practices associated with the industry such as testing code and documentation. Implementing Python Pandas for data analysis.

### **Intended Module Learning Outcomes**

On completion of this module the student should be able to:

1. Demonstrate an ability to use basic control flow syntax to produce working solutions to problems in a programming language.
2. Reason about simple algorithms, selecting or creating algorithms to solve specific and generalised problems.
3. Understand the need for, and begin to use, practices such as code testing and documentation in professional programming environments.
4. Express, implement and use Python Pandas for data analysis.

### **Indicative Content**

Basic Programming Practice: Variables, values, data types (integer, floating point, string, Boolean), function calls, function creation, conditionals (if statements), and iteration (loops); all in a high level programming language.

Algorithmic Problem Solving: Using the above to solve a range of problems; expressing algorithms to solve problems.

More Sophisticated Programming Practice: Recursive functions, error handling, data structures (e.g. arrays, associate arrays) and their use to solve problems.

Essential fundamentals for Programming and Algorithms: Boolean logic, distinguishing different programming languages, classification of errors.

Professional Tools: version control, testing and documentation for code.

Express, implement and use Python Pandas for data analysis

### **Special Features**

This module uses cloud IDE or VM platform Codio. Students will do their coding on their own virtual machine accessed via a browser. This allows them to access their work from anywhere and have a consistent environment. It also allows for the provision of automated feedback on their code.

## Teaching and Learning

Learning will be facilitated through a variety of methods which may include lectures, seminars, lab, workshops, online activities and group work. Students are expected to engage in both class and online activities and discussions.

This module also requires students to participate in additional guided reading and self-directed study to reinforce the learning gained from timetabled sessions. Formative assessment will be used to prepare students for summative assessment and give students an early indication of their progress towards the course intended learning outcomes.

Note that the hours below do not add up to the usual 200 for a 20 credit module. This is because the module has only 10 assessment credits, with the other 10 given to the Course Project module CHK4039CEM. The total number of hours for all modules in the semester add up to the usual 600.

## Method of Delivery

Activity Type	Hours
Demonstration	
External Visits	
Fieldwork	
Guided	
Laboratory	24
Lecture	24
Placement	
Practice	
Project Supervision	
Self guided	102
Seminar	
Studio	
Tutorial	
Work Based Learning	
Workshop	
Year Abroad	
Total	150

### Method of Assessment (normally assessed as follows)

Assessment	Component Type	Credits	Learning Outcomes			
			1	2	3	4
Tst	Applied Core	5	✓	✓	✓	
Cw	Applied Core	10	✓	✓	✓	✓

The Tst component is a 1 hour online based test.

The CW component is an application of programming to solve a real life case studies.

Re-assessment is through a new coursework and/or examination

Note that the content of this module is also assessed by the first Activity Led Learning Project CHK4039CEM.

### Passing Requirements

Tst must be at least 40% and Cw must be at least 40% and Module Mark must be at least 40%.

### Essential Reading List

### Recommended Reading List

1. Lutz, M. (2013) Learning Python. O'Reilly Media, California, USA. 5th edition.
2. Downey, A. (2015) Think Python. O'Reilly, Beijing. 2nd edition.
3. Shaw, Z. (2013) Learn Python the hard way: a very simple introduction to the terrifyingly beautiful world of computers and code. Addison-Wesley, London.
4. Dierbach, C. (2013) Introduction to programming using Python: a computational problem-solving focus. John Wiley & Sons, USA.
5. Loeliger, J. and McCullough, M. (2012) Version control with Git. O'Reilly, Beijing. 2nd.
6. Tucker, A. and Noonan R. (2013) Programming languages: principles and paradigms. McGraw Hill, London, UK.

### Required Equipment

None