



UNIVERSITY OF WALES: TRINITY SAINT DAVID
PRIFYSGOL CYMRU: Y DRINDOD DEWI SANT

School of Applied Computing

Computational Thinking
ACC4001

AIM(S)

To provide the student with an understanding of the software constructs of a programming language, and the process of writing a computer program.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to demonstrate the ability to:

1. Demonstrate an understanding of programming constructs and the logical thinking required to program.

INDICATIVE CONTENT

- Programming language syntax and semantics
- Hierarchical task analysis, sequential execution.
- Variable declarations including types
- Branch constructs including if, else and switch
- Loop constructs including for and while loops
- Declaring functions, passing arguments, returning values, calling functions, etc.
- Using tools for implementing and executing applications
- Software design e.g. flow charts.

LEARNING AND TEACHING STRATEGY

Essential concepts and principles will be delivered formally in tutorials supported by concurrent practical laboratory exercises, which will allow students to deploy appropriate theory, practices and tools. Seminars will be punctuated with examples designed to underpin the ideas and techniques introduced, reducing the conceptual leap from theory to practice.

The allocation of teaching to deliver the module is:

Activity type	Hours	Percentage
Scheduled learning	35	35%
Independent learning	65	65%
Placement learning	0	
TOTAL	100	100%

ASSESSMENT

100% - 2 Hour Examination

Assessment Summary

Activity type	Percentage
Written	0%
Coursework	0%
Practical	100%
TOTAL	100%

BIBLIOGRAPHY

Essential

Sebesta, R. (2012) *Concepts of Programming Languages*, Pearson Education

Guttag, J.V.. (2013) *Introduction to Computation and Programming Using Python*, MIT Press

Background

Farrell, I. (2010) *A Beginner's Guide to Programming Logic and Design*, Course Technology

Watson, K., Hammer, J.V., Reid, J., Skinner, M., Kemper, D., Nagel, C. (2012) *C Beginning Visual C# 2012 Programming*, John Wiley and Sons

Currie, E. (2006) *The Fundamentals of Programming Using Java*, Cengage Learning

Websites

<http://www.freenetpages.co.uk/hp/alan.gauld/>

<http://www.codecademy.com/>

<http://learnpythonthehardway.org/book/>

<http://www.tutorialspoint.com/csharp/>