

H6PSPC: Problem Solving & Programming Concepts

Module Code:	H6PSPC
Long Title	Problem Solving & Programming Concepts APPROVED
Title	Problem Solving & Programming Concepts
Module Level:	LEVEL 6
EQF Level:	5
EHEA Level:	Short Cycle
Credits:	5
Module Coordinator:	FRANCES SHERIDAN
Module Author:	FRANCES SHERIDAN
Departments:	School of Computing
Specifications of the qualifications and experience required of staff	Master's degree in computing or cognate discipline.
Learning Outcomes	
<i>On successful completion of this module the learner will be able to:</i>	
#	Learning Outcome Description
LO1	Solve a range of classic puzzles.
LO2	Develop problem solving capabilities.
LO3	Express algorithmic solutions to defined problems using accepted documentation methods.
LO4	Use the basic constructs of programming when solving well- defined problems.
Dependencies	
Module Recommendations	
No recommendations listed	
Co-requisite Modules	
No Co-requisite modules listed	
Entry requirements	See section 4.2 Entry procedures and criteria for the programme including procedures recognition of prior learning

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Module Content & Assessment			
Indicative Content			
Strategies for Problem Solving Types of problems.. Using computers to solve problems.. Steps in analysing a problem and designing an appropriate solution. . Classic Puzzles e.g. Crossing a River, The Tower of Hanoi.			
Algorithmic Problem Solving Understanding the purpose of an algorithm.. Identifying standard documentation techniques such as flowcharts or pseudocode.			
Algorithmic Problem Solving Identifying standard documentation techniques such as flowcharts or pseudocode.			
Beginning Problem Solving Concepts for the Computer An introduction to programming structure. . Constants & variables			
Beginning Problem Solving Concepts for the Computer Data types. . How the computer stores data.			
Beginning Problem Solving Concepts for the Computer Functions, Operators, Expressions & Equations.			
Problem Solving & Control Statements Understanding when to use a control statement.			
Problem Solving & Control Statements Problem solving with Decision.			
Problem Solving & Control Statements Problem solving with Case Logic Structure.			
Problem Solving & Control Statements Problem solving with Loops.			
Evaluating Algorithmic Solutions Apply test plans to algorithmic solutions.			
Evaluating Algorithmic Solutions Understanding algorithm efficiency.			
Assessment Breakdown			%
Coursework			100.00%
Assessments			
Full Time			
Coursework			
Assessment Type:	Other	% of total:	Non-Marked
Assessment Date:	n/a	Outcome addressed:	1,2
Non-Marked:	Yes		
Assessment Description: Ongoing independent and group problem solving activities and feedback			
Assessment Type:	Project	% of total:	40
Assessment Date:	n/a	Outcome addressed:	2,3
Non-Marked:	No		
Assessment Description: Team project requiring learners to apply problem solving skills to the resolution of a real life problem. The problem should be documented using widely accepted methods such as flow-charts, pseudocode etc.			
Assessment Type:	Project	% of total:	40
Assessment Date:	n/a	Outcome addressed:	2,3,4
Non-Marked:	No		
Assessment Description: Individual project requiring the learner to document and solve a programming problem using a syntax-free programming language such as Snap.			
Assessment Type:	Continuous Assessment	% of total:	20
Assessment Date:	n/a	Outcome addressed:	1,2,3,4
Non-Marked:	No		
Assessment Description: Short weekly quizzes spanning the semester assessing learners knowledge and understanding of new topics addressed that week.			
No End of Module Assessment			
No Workplace Assessment			
Reassessment Requirement			
Repeat examination Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.			
Reassessment Description Learners who fail this module will be required to sit a repeat module assessment where all learning outcomes will be examined.			

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Module Workload				
Module Target Workload Hours 0 Hours				
Workload: Full Time				
Workload Type	Workload Description	Hours	Frequency	Average Weekly Learner Workload
Lecture	Classroom & Demonstrations (hours)	24	Per Semester	2.00
Tutorial	Other hours (Practical/Tutorial)	12	Per Semester	1.00
Independent Learning	Independent learning (hours)	89	Per Semester	7.42
Total Weekly Contact Hours				3.00

Module Resources	
<i>Recommended Book Resources</i>	
Savitch, W. & Mock, K.. (2012), Java: An Introduction to Problem Solving and Programming (7th ed), Addison-Wesley, New Jersey. Backhouse, R.. (2011), Algorithmic Problem Solving, Wiley. Sprankle, M. & Hubbard, J.. (2011), Problem Solving & Programming Concepts (9th ed), Pearson Education.	
<i>This module does not have any article/paper resources</i>	
<i>This module does not have any other resources</i>	
Discussion Note:	