

## Liverpool John Moores University

Title: PROBLEM SOLVING FOR COMPUTER SECURITY  
Status: Definitive  
Code: **4614YCOM** (125484)  
Version Start Date: 01-08-2021

Owning School/Faculty: Computer Science and Mathematics  
Teaching School/Faculty: YPC International College (Kolej Antarabangsa YPC)

Team	Leader
Bo Zhou	Y
Michael Mackay	

**Academic Level:** FHEQ4      **Credit Value:** 20      **Total Delivered Hours:** 55  
**Total Learning Hours:** 200      **Private Study:** 145

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	11
Practical	22
Tutorial	22

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Group software project	80	
Presentation	AS2	Group presentation	20	

### Aims

*To enhance students programming skills using a popular programming language.  
To enhance students software development and problem solving skills  
To develop employability skills including team/group work and communication*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Apply programming techniques to computer security problems
- 2 Identify solutions to simple computer security problems using a range of software development techniques
- 3 Review the effectiveness of team work following a team project
- 4 Display oral presentation skills relating to technical subject knowledge

## Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Group software project	1	2	3
Group presentation	3	4	

## Outline Syllabus

- *Programming; manipulating data, using abstract data types, pattern matching, basic authentication and encryption, etc.*
- *Problem solving: flow diagrams, pseudocode, information representation, algorithms, encapsulation, abstraction, dividing large problems, combining small solutions, etc.*
- *Security case studies; password cracking, encrypting files, producing and verifying hash values, pattern matching, etc.*
- *Group working; understanding your own personality (leaders, encouragers, critics, etc), organisation skills, holding meetings, professional communication.*

## Learning Activities

Students will participate in lectures, practical tutorials / lab sessions and work in groups.

## Notes

Students will undertake a group project to solve problems relating to computer security by enhancing their programming skills. Students will consider the design and problem analysis aspects of a range of security problems and consider how these can be translated into software solutions. Students will develop employability skills such as collaborative problem solving, team work, communication and planning, via a group project forming the core work of the module's assessment.