Liverpool John Moores University

Title:	OBJECT ORIENTED SYSTEMS & DATA STRUCTURES
Status:	Definitive
Code:	**5013COMP** (102951)
Version Start Date:	01-08-2011

Owning School/Faculty: Computing and Mathematical Sciences
Teaching School/Faculty: Computing and Mathematical Sciences

Team	emplid	Leader
Somasundaram Ravindran		Y

Academic Level:	FHEQ5	**Credit Value:**	24.00	**Total Delivered Hours:**	74.00
Total Learning Hours:	240	**Private Study:**	166		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24.000
Practical	24.000
Tutorial	24.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Report	50.0	
Exam	AS2	Examination	50.0	2.00

Aims

To develop an understanding of the concepts of Object Oriented Programming and the use of Object Oriented Design principles.
To develop an understanding of a range of data structures and an ability to apply such structures.

Learning Outcomes

After completing the module the student should be able to:

1   Apply the principles of object orientation.
2   Develop a system using object oriented techniques.
3   Critically appraise the strengths and weaknesses of the Object oriented
     methodology
4   Distinguish between abstract and concrete structures and specify properties at the
     abstract level before choosing concrete representations.
5   Define operations on various static and dynamic data structures; evaluate the
     advantages and disadvantages of using different data structures.

Learning Outcomes of Assessments

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

Report   1   2   3

Exam   4   5

Outline Syllabus

Review of programming principles: modularity, function definitions and use.
Record structures: definitions and use.
OO principles: objects and classes, encapsulation, data hiding, public and private data, inheritance and composition, polymorphism.
Support in suitable programming languages.
OO design issues: identifying objects and classes, textual analysis, CRC cards elements of UML.
Formulating an implementation from an Object Oriented Design.

Stacks and operations on stacks.
Queues and operations on queues.
Trees, binary trees, binary search trees, inserting and deleting objects in binary search trees.
Graphs and graph traversals using stacks and queues.
Issues in implementing data structures

Learning Activities

Lectures, tutorials and labs.

References

Course Material	Book
Author	Stevens P., Pooley R

Publishing Year	2000
Title	Using UML
Subtitle	
Edition	
Publisher	Addison Wesley
ISBN	

Course Material	Book
Author	Riley D.
Publishing Year	2003
Title	undefined
Subtitle	
Edition	
Publisher	Addison Wesley
ISBN	

Course Material	Book
Author	Weiss, M.
Publishing Year	2007
Title	undefined
Subtitle	
Edition	
Publisher	Addison Wesley
ISBN	

Course Material	Book
Author	Weisfield, B. Ryan, T.
Publishing Year	2003
Title	The OO Thought Process
Subtitle	
Edition	
Publisher	Sams
ISBN	

Notes

Object-oriented concepts underlie the modern system design paradigm. This course presents the concepts behind the object model and its use in modeling and implementing computer applications.
Designing the data structures required in a software problem is a key stage. This module focuses on the data: definition at an abstract level, possible implementations and efficiency. It also looks at the standard structures and their applications