

Liverpool John Moores University

Title: COMPUTER SYSTEMS TECHNOLOGY
Status: Definitive
Code: **7001COMP** (103261)
Version Start Date: 01-08-2011

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

Team	Leader
Rubem Pereira	Y

Academic Level: FHEQ7
Credit Value: 15.00
Total Delivered Hours: 38.00
Total Learning Hours: 150
Private Study: 112

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	18.000
Practical	6.000
Tutorial	12.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	A theoretical / practical piece of work, involving the design of distributed systems.	25.0	
Exam	AS2	Examination	75.0	2.00

Aims

To evaluate the effect of distribution, benefits and problems, on the design and implementation of computer based solutions, using performance analysis tools.

To assess critically a variety of principles, tools and techniques used for the design of distributed computer systems.

Learning Outcomes

After completing the module the student should be able to:

- 1 Design and implement a computer system performance evaluation experiment and critically evaluate the result of such experiment.
- 2 Analyse the requirements of a distributed system and critically review the suitability of existing distributed systems paradigms.
- 3 Demonstrate mastery of advanced topics in distributed operating systems and middleware.
- 4 Select appropriate middleware tools and design a distributed application.

Learning Outcomes of Assessments

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

Distributed systems design Examination	2	3	4	
	1	2	3	4

Outline Syllabus

Techniques and methodologies for performance evaluation: Evaluation techniques, metrics and workload. Computer based simulation.

Distributed Computer Systems Architectures - Parallel and Distributed Architectures. The main aims associated with Distributed Solutions.

Distributed Systems Concepts and Architectures - Concepts of distribution, the Client Server and Peer to Peer Models. Networked applications, Message passing, Remote Procedure Calling and Remote Method Invocation mechanisms

The World Wide Web model as a case study. Performance enhancing solutions.

Network Operating Systems. Operating systems, communications subsystems and Middleware technology.

Distributed File Systems Design: File servers, file replication and consistency, caching mechanisms and other performance enhancing techniques.

Learning Activities

Lectures, tutorials, directed reading of books, advanced journals, conference papers and other publications.

References

Course Material	Book
Author	Andrew Tanenbaum and Martin van Steen
Publishing Year	2007
Title	Distributed Systems, Principles and Paradigms
Subtitle	
Edition	2nd Edition
Publisher	Prentice Hall
ISBN	0-13-239227-5

Course Material	Book
Author	George Coulouris, Jean Dollimore and Tim Kindberg
Publishing Year	2005
Title	Distributed Systems, Concepts and Design
Subtitle	
Edition	4th Edition
Publisher	Addison Wesley
ISBN	0-321-263 545

Course Material	Journal / Article
Author	
Publishing Year	
Title	ACM Transactions on Computer Systems, Journal
Subtitle	
Edition	
Publisher	
ISBN	ISSN: 0734-2071

Notes

Modern computing technologies and their trends are presented. The distributed paradigm is analysed, including distributed operating systems and applications. The Client/Server and P2P models and their support for distributed applications is presented. Current hardware technological advances are covered. Middleware case studies are used to illustrate distributed solutions.

Group Coursework: Students will be differentiated through peer review for marking purposes.