H8DSY: Distributed Systems

Module Code:		H8DSY					
Long Title		Distributed Systems APPROVED					
Title		Distributed Systems					
Module Level:		LEVEL 8					
EQF Level:		6					
EHEA Level:		First Cycle					
Credits:		5					
Module Coordinator:		HONY PAUL STYNES					
Module Author:		Adriana Hava Olariu					
Departments:		School of Computing					
Specifications of the qualifications and experience required of staff							
Learning Outcomes							
On successful completion of this module the learner will be able to:							
#	Learning Outcome	ne Description					
LO1	Explain the theory, c	oncepts and principles of distributed systems operation and design					
LO2	Demonstrate concep	eptual, technical and practical skills in the analysis, design and test of distributed systems.					
LO3	Explain the theory, c	, concepts and principles of cloud-based distributed systems.					
LO4	Demonstrate concep	otual, technical and practical skills in the implementation of advanced communication systems.					
Dependencies							
Module Recommendations							
No recommendations listed							
Co-requisite Modules							
No Co-requisite modules listed							
Entry require	ments						

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Module Content & Assessment

Indicative Content

Distributed Systems - Concepts and principles

Distributed Systems Models • Parallel and Distributed Programming Paradigm • Network Programming • Security Options for Distributed Systems

• Web Services Technologies • Semantic Web • Semantic Web Services • Personalised Web • Distributed Recommender Systems • Socket programming (Client/Server communication, Socketsand threading, Abstract service methods)

Cloud-based Distributed Systems

Distributed and cloud-based storage architectures and file systems • Services in the Cloud Computing • Programming Distributed systems using Amazon Web Services and Windows Azure

Peer-to-Peer Networks
• Peer-to-Peer Concepts • Distributed Hash Tables • Comparison of P2P algorithms • Group Communication • Peer-to-Peer Overlay Networks and Proprieties

Ubiquitous Distributed Systems and the Internet of Things

Trends in supporting Ubiquitous Computing • Distributed Systems for Social and Professional Networking • Distributed Systems for Multimedia

Internet of Things

Enabling Technologies for the Internet of Things
 Applications of the Internet of Things

Assessment Breakdown	%	
Coursework	60.00%	
End of Module Assessment	40.00%	

Assessments

Full Time

Coursework

Assessment Type:

Project

% of total:

% of total:

30

Assessment Date:

n/a

Outcome addressed:

2.4

Non-Marked:

No

Assessment Description:

Sample Project: This project should be done in groups of two. You are required to choose an area of interest to develop a dynamic distributed systems (e.g. online shopping, distributed game, distributed social network, etc.) The system should have 6 main functional requirements and to allow communication to take place using two components such as address book, chatroom etc. You are required to provide personalisation and recommendation to the user, to integrate web services and integrate cloud-based platforms

Assessment Type: Assignment Assessment Date: n/a

Outcome addressed:

30 1.2.3.4

Non-Marked:

No

Assessment Description: Series of continuous practical assessments and learning activities given throughout the semester. Sample Practical Assessment - In class test using the P2P Pastry Example Description: Using the code on Moodle (chat source code), modify the application so that the user can enter the text of the specific message they want to send to a specific

End of Module Assessment

Assessment Type: Terminal Exam **Assessment Date:** End-of-Semester % of total:

40

Non-Marked:

Nο

Outcome addressed:

1,2,3,4

Assessment Description: No Workplace Assessment

Reassessment Requirement

End-of-Semester Final Examination

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.

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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	No Description	24	Per Semester	2.00			
Tutorial	No Description	12	Per Semester	1.00			
Independent Learning No Description		89	Per Semester	7.42			
Total Weekly Contact Hours							

Module Resources

Recommended Book Resources

Maarten van Steen, Andrew S. Tanenbaum. (2017), Distributed Systems, Createspace Independent Publishing Platform, p.582, [ISBN: 978-1543057386].

Amy Elser. (2012), Guide to Reliable Distributed Systems, Springer Science & Business Media, p.730, [ISBN: 978-1447124153].

Kai Hwang, Geoffrey C. Fox, J. J. Dongarra. (2012), Distributed and Cloud Computing, Morgan Kaufmann Pub, p.648, [ISBN: 978-0123858801].

Javier Fernández González. Mastering Concurrency Programming with Java 8, [ISBN: 1785886126].

Supplementary Book Resources

Brendan Burns. Designing Distributed Systems, 1st Edition. O'Reilly, [ISBN: 9781491983645].

James Kurose, Keith Ross. (2016), Computer Networking, 7th Edition. Pearson, [ISBN: 978-1292153599].

This module does not have any article/paper resources

This module does not have any other resources

Discussion Note: