

COURSE OUTLINE

Department & Faculty: Dept. of Computer Science, Faculty of Computing	Page : 1 of 4
Course Code : MCCS2313	Review:
Course Name Advanced Computer System & Architecture.	Initial Date : 26 September 2008
Total Contact Hours : 42hours	Last Update : 22 February 2016
	Edition : 1
	Procedure

Lecturer : Dr. Mohd Murtadha Mohamad Room No: D07 451-01 Tel: ext. 32221
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Synopsis : This course focuses on advanced topics in the design and analysis of computer architectures. Topics covered include instruction set design, pipelining, instruction-level parallelism, high-speed memory systems, storage systems, interconnection networks, and multiprocessor architectures. Students will have an opportunity to perform research in these and other areas in the field of computer architecture. An undergraduate course in computer architecture (or equivalent) is the prerequisite.

LEARNING OUTCOMES

By the end of the course, students should be able to:

No.	Course Learning Outcome	Programme Learning Outcome(s) Addressed	Assessment Methods
1.	Differentiate the organizational paradigms that determine the capabilities and performance of computer systems;	PO1[C2,P1,A2]	Lecture, Individual Assignment
2.	Analyze the interactions between the computer's architecture and its software;	PO1[C3,P2,A2],	Lecture, Class Discussion, Mid Term
3.	Ability to apply the advanced design features on modern processors that boost the performance;	PO2[C3,P2,A2],	Lecture, Class Discussion, Project, Final Exam
4.	Design and analyze a simple high-performance computer architecture;	PO2[C3,P2,A2],	Lecture, Class Discussion, Assignment, Project, Final Exam

<p>Prepared by: Name: Dr. Norafida Ithnin Signature: Date: 7 Nov 2008</p>	<p>Certified by: (Course Panel Head) Name: Signature: Date:</p>
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STUDENT LEARNING TIME

Teaching and Learning Activities	Student Learning Time (hours)
1. Direct Learning	(42)
i. Lecture	36
ii. Student Centered Learning	
a) Tutorial	
b) Group Discussion	6
2. Self Learning	(73)
i. Indirect Learning	
a) Assignment	15
b) Group discussion for project	10
ii. Revision	23
iii. Preparation for Examination, Test and Quiz	25
3. Formal Assessment	(5)
i. Mid-Term Exam (1)	2
ii. Final Exam (1)	3
Total	120

TEACHING METHODOLOGY

Lecture and Discussion

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WEEKLY SCHEDULE

Week	Content	Activities
1	Course Intro, Trends in Technology	Lecture & Class Discussion
2	Computer Performance & Cost	Lecture & Class Discussion
3	Instruction Design Issues	Lecture & Class Discussion
4	Pipelining	Lecture & Class Discussion Assignment 1
5	Hazards	Lecture & Class Discussion
6	Variable-Latency Pipelines	Lecture & Class Discussion Mid Term
7	Instruction Level Parallelism	Lecture & Class Discussion Class Project Start
8	Dynamic Scheduling & Hardware Prediction	Lecture & Class Discussion Assignment 2
9	Mid-Term Break	
10	Multiple Issues – Superscalar and VLIW	Lecture & Class Discussion
11	Compiler & Hardware Support	Lecture & Class Discussion
12	Storage System	Lecture & Class Discussion
13	Network Design Issues	Lecture & Class Discussion
14	Shared memory Architectures	Lecture & Class Discussion Assignment 3
15	Synchronization, Memory Consistency, Multiprocessors	Lecture & Class Discussion Class Project Due/Presentation/Demo
<i>Study Week</i>		Revision
<i>Final Exam Weeks</i>		Final Exam

REFERENCES :	<p>References</p> <ol style="list-style-type: none"> 1. Computer Architecture: A Quantitative Approach, John L. Hennessy and David A. Patterson, Morgan Kaufmann Publishers, Second Edition, 1996. 2. Readings in Computer Architecture, Edited by M.D.Hill, N.P Joupphi, and G.S Sohi, Morgan Kaufmann Publishers, 2000
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GRADING

No.	Assessment	Number	% each	% total
1	Assignments	3	varies	15
2	Class Participation			5
3	Project	1	15%	15
4	Mid-Term Exam	1	30%	30
5	Final Exam	1	35%	35
	Overall Total			100