



Course Specification

Course Name: [Distributed and Parallel Computer Systems]
Course Code: [IT411]

I. Basic Course Information

Major or minor element of program: Major
Department offering the course: [Information Technology Department]

Academic level: [300 Level]
Semester in which course is offered: [Second (Spring) Semester]
Course pre-requisite(s): [Computer Architecture IT311]

Credit Hours: 3
Contact Hours Through:

Lecture	Tutorial*	Practical*	Total
2.5	0.0	1.5	4.0

* 1.5 hours for **either** Tutorial or Practical

Approval date of course specification: [January 2015]

II. Overall Aims of Course

Familiarize the student with the basic characteristics of distributed computer systems.
Give the student an idea about how the distributed objects communicate with each other and share the resources properly among them.]

III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
[K1,K6,K17,K20]	[I2,I9,I11,I19]	[P12,P19,P20]	[G1,G2,G6]



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IV. Intended Learning Outcomes of Course (ILOs)

a. Knowledge and Understanding

On completing the course, students should be able to:

- K.1 Recognize basic characteristics of a distributed computer system.
- K.2 Recognize different computer architectures and name the different models used in a distributed computer system.
- K.3 Identify how different objects communicate in distributed systems.
- K.4 Identify how shared resources are accessed, allocated by objects in a distributed system.
- K.5 Recognize basic design and implementation issues in distributed systems and shared memory.]

b. Intellectual/Cognitive Skills

On completing the course, students should be able to:

- I.1 Examine and compare the different models used in distributed systems.
- I.2 Analyse a distributed system and define its components, model used and communication method between its objects.
- I.3 Examine and compare the different methods used for concurrency control.
- I.4 Examine the implementation and design issues in distributed systems and categorize solutions to any of them.]

c. Practical/Professional Skills

On completing the course, students should be able to:

- P.1 Manipulate the knowledge acquired from the course in developing a distributed system using Java RMI.
- P.2 Organize the design of a distributed system requirements.
- P.3 Present the proposed developed distributed system.]

d. General and Transferable Skills

On completing the course, students should be able to:

- G.1 Improve presentation skills.
- G.2 Improve team work skills.
- G.3 Search in available data and knowledge resources.]

V. Course MatrixContents

	Main Topics / Chapters	Duration (Weeks)	Course ILOs Covered by Topic (By ILO Code)			
			K & U	I.S.	P.S.	G.S.
1-	Characterization of distributed systems]	[1]	[K1]	[I1-I4]	[P1]	[G3]
2-	System Models]	[1]	[K1,K2]	[I1,I2]	[P1,P3]	[G3]
3-	Inter-process communication]	[1]	[K3]	[I2]	[P1,P2]	[G3]
4-	Distributed objects and remote invocation]	[2]	[K3,K4]	[I2]	[P1,P2]	[G3]
5-	Operating system support]	[1]	[K1-K5]	[I1-I3]	[P1,P2,P3]	[G1,G3]
6-	Time and Global states (Synchronization)]	[2]	[K1,K4]	[I1,I2]	[P1,P2]	[G1,G3]
7-	Transactions and concurrency control]	[2]	[K4-K5]	[I1,I3]	[P1,P2]	[G1,G3]
8-	Distributed transactions]	[2]	[K1-K5]	[I1,I4]	[P1,P2]	[G1,G2,G3]
9-	Distributed Shared Memory]	[1]	[K1-K5]	[I1,I4]	[P1,P2]	[G1,G2,G3]
	Net Teaching Weeks	13				



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VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours*
1	Characterization of distributed systems	2.5	2.5	
2	System Models	4	2.5	1.5
3	Inter-process communication	4	2.5	1.5
4	Distributed objects and remote invocation 1	4	2.5	1.5
5	Distributed objects and remote invocation 2	4	2.5	1.5
6	Operating system support	4	2.5	1.5
7	Midterm Exam			
8	Time and Global states (Synchronization) 1	4	2.5	1.5
9	Time and Global states (Synchronization) 2	4	2.5	1.5
10	Transactions and concurrency control 1	4	2.5	1.5
11	Transactions and concurrency control 2	4	2.5	1.5
12	Distributed transactions 1	4	2.5	1.5
13	Distributed transactions 2	4	2.5	1.5
14	Distributed Shared Memory	4	2.5	1.5
15	Final Exam			
Total Teaching Hours		51	33	18

* No Practical/Tutorial during the first week of the semester

VII. Teaching and Learning Methods

Teaching/Learning Method	Selected Method	Course ILOs Covered by Method (By ILO Code)			
		K & U	Intellectual Skills	Professional Skills	General Skills
Lectures & Seminars	<input type="checkbox"/>	K1-K5	I1,I2		
Tutorials	<input type="checkbox"/>				
Computer lab Sessions	<input type="checkbox"/>				
Practical lab Work	<input type="checkbox"/>		I3,I4	P1,P2	G2
Reading Materials	<input type="checkbox"/>				
Web-site Searches	<input type="checkbox"/>		I1:I3		G3
Research & Reporting	<input type="checkbox"/>				
Problem Solving / Problem-based Learning	<input type="checkbox"/>				
Projects	<input type="checkbox"/>				
Independent Work	<input type="checkbox"/>				
Group Work	<input type="checkbox"/>			P1,P3	G1,G2
Case Studies	<input type="checkbox"/>				
Presentations	<input type="checkbox"/>		I1:I4		G1:G3
Simulation Analysis	<input type="checkbox"/>				
Others (Specify):	<input type="checkbox"/>				



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VIII. Assessment Methods, Schedule and Grade Distribution

Assessment Method	Selected Method	Course ILOs Covered by Method (By ILO Code)				Assessment Weight / Percentage	Week No.
		K & U	I.S.	P.S.	G.S.		
Midterm Exam	[x]	[K1-K5]	[I1:I3]	[]	[]	[15%]	7
Final Exam	[x]	[K1-K5]	[I1:I4]	[]	[]	60%	15
Quizzes	[]	[]	[]	[]	[]	[]	[]
Course Work	[x]	[K1-K5]	[I1:I4]	[]	[]	[5%]	[]
Report Writing	[]	[]	[]	[]	[]	[]	[]
Case Study Analysis	[]	[]	[]	[]	[]	[]	[]
Oral Presentations	[x]	[]	[I4]	[P1,P3]	[G1,G3]	[5%]	[]
Practical	[x]	[]	[]	[P1,P2,P3]	[G1,G2]	[10%]	[]
Group Project	[x]	[]	[I4]	[P1,P2,P3]	[G1,G2,G3]	[5%]	[]
Individual Project	[]	[]	[]	[]	[]	[]	[]
Others (Specify):	[]	[]	[]	[]	[]	[]	[]

IX. List of References

Essential Text Books	<ul style="list-style-type: none"> [Distributed Systems concepts and design, Third Edition by George Coulouris, Jean Dollimore, Tim Kindberg, 2002]
Course notes	<ul style="list-style-type: none"> [Lecture slides and notes]
Recommended books	<ul style="list-style-type: none"> [None]
Periodicals, Web sites, etc ...	<ul style="list-style-type: none"> [Various]

X. Facilities required for teaching and learning

[List the facilities required <ul style="list-style-type: none"> • Data show • Computer Labs]

Course coordinator:[Dr. Khaled Mostafa]

Head of Department:Prof. Hesham El Mahdy

Date:[January 2015]