



## Course Specification

**Course Name:** [Selected Topics in Computer Science - 1 ]

**Course Code:** [CS495]

### I. Basic Course Information

Major or minor element of program: [Major]

Department offering the course: [Computer Science Department ]

Academic level: [400 Level]

Semester in which course is offered: Second (spring) semester

Course pre-requisite(s): [N/A ]

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

[The aim of this course is to teach the students the new technologies that are not offered in the current courses definitions. The course contains topics from different areas, and when the course is offered, some of these topics are selected to be taught to students ]

### III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
[K8,K10,K13,K19 ]	[I12,I16,I18 ]	[P3,P14,P16 ]	[G8,G9 ]



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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 Understand [the advanced topics and techniques in one of the hot computer science fields. The suggested fields are Software Engineering, Parallel Processing, Distributed Computing or Soft Computing.
- K.2 Recognize new and advanced techniques of Software Engineering.
- K.3 Discuss new and advanced techniques of Parallel and Distributed Computing.
- K.4 Classify new and advanced techniques of Soft Computing. ]

#### b. Intellectual/Cognitive Skills

[ On completing the course, students should be able to:

- I.1 Categorize the advanced topics in a field.
- I.2 Criticize the taught techniques and suggest better solutions.
- I.3 Create and defend reports in a specific point. ]

#### c. Practical/Professional Skills

[ On completing the course, students should be able to:

- P.1 Practice Team Software Process and Personal Software Process.
- P.2 Apply the advanced techniques in software design and architecture.
- P.3 Apply the advanced techniques to solve practical problems in parallel.
- P.4 Solve problems using advanced soft computing techniques. ]

#### d. General and Transferable Skills

[ On completing the course, students should be able to:

- G.1 Apply advanced techniques in solving difficult problems
- G.2 Capable of life-long learning ]

### V. Course Matrix Contents

	Main Topics / Chapters	Duration (Weeks)	Course ILOs Covered by Topic (By ILO Code)			
			K & U	I.S.	P.S.	G.S.
1-	Personal Software Process and Team Software Process ]	[2 ]	[K1 ]	[I1 ]	[P1 ]	[ ]
2-	[Advanced topics in Software Architecture and Design ]	[1 ]	[K2 ]	[I1,I2 ]	[P2 ]	[G1,G2 ]
3-	[Advanced topics in Software Process Improvement ]	[2 ]	[K2 ]	[All ]	[ ]	[ ]
4-	[Advanced topics in Parallel Architecture ]	[2 ]	[K3 ]	[I2 ]	[P3 ]	[G1,G2 ]
5-	[Advanced topics in Parallel Algorithms ]	[2 ]	[K3 ]	[I2 ]	[P3 ]	[G1,G2 ]
6-	[Advanced topics in Artificial Intelligence ]	[2 ]	[ ]	[I2,I3 ]	[ ]	[G1,G2 ]
7-	[Advanced topics in Soft Computing ]	[2 ]	[K4 ]	[I2 ]	[P4 ]	[G1,G2 ]
	<b>Net Teaching Weeks</b>	<b>13</b>				



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VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours*
1	Personal Software Process	2.5	2.5	
2	Team Software Process	4	2.5	1.5
3	Software Design	4	2.5	1.5
4	Subsystem Decomposition	4	2.5	1.5
5	Software Architectural Styles	4	2.5	1.5
6	Software Process Improvement	4	2.5	1.5
7	<b>Midterm Exam</b>			
8	Parallel Architectures	4	2.5	1.5
9	Introduction to Parallel Algorithms	4	2.5	1.5
10	Divide-and-conquer Algorithms	4	2.5	1.5
11	Randomization	4	2.5	1.5
12	Parallel pointer techniques	4	2.5	1.5
13	Artificial Intelligence	4	2.5	1.5
14	Soft Computing	4	2.5	1.5
15	<b>Final Exam</b>			
<b>Total Teaching Hours</b>		<b>51</b>	<b>33</b>	<b>18</b>

\* 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	X	All	All	All	G1,G2
Tutorials					
Computer lab Sessions					
Practical lab Work					
Reading Materials	X	All	All	All	G1,G2
Web-site Searches					
Research & Reporting					
Problem Solving / Problem-based Learning					
Projects					
Independent Work					
Group Work					
Case Studies					
Presentations					
Simulation Analysis					
Others (Specify):					



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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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
Final Exam	<input checked="" type="checkbox"/>	[All ]	[All ]	<input type="checkbox"/>	[All ]	60%	15
Quizzes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Course Work	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[All ]	<input type="checkbox"/>	[30% ]	[Every week ]
Report Writing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Case Study Analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oral Presentations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Practical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group Project	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	[All ]	<input type="checkbox"/>	[10% ]	[13 ]
Individual Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others (Specify):	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IX. List of References

<b>Essential Text Books</b>	<ul style="list-style-type: none"> <li>• [A.S. Tanenbaum and M. Van Steen, Distributed System: principles and paradigms, Prentice-Hall, 2002, ISBN: 0-13-088893-1</li> <li>• Barry Wilkinson and Michael Allen, Parallel Programming, Techniques and Applications using Networked Workstations and Parallel Computers, Second Edition, Pearson Prentice-Hall, ISBN: 0-13-140563-2</li> <li>• Ian Sommerville, Software Engineering, Sixth Edition</li> <li>• Englbrecht Computational Intelligence: An Introduction, 2004 ]</li> </ul>
<b>Course notes</b>	• [None ]
<b>Recommended books</b>	• [None ]
<b>Periodicals, Web sites</b>	• [None ]

X. Facilities required for teaching and learning

<p>[List the facilities required</p> <ul style="list-style-type: none"> <li>• Computer Labs ]</li> </ul>
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Course coordinator:[Dr. Sherif Khattab]

Head of Department:[Prof. Abeer El Korany]

Date: January 2015