



**University/Academy:** Arab Academy for Science, Technology & Maritime Transport  
**Faculty/Institute:** College of Engineering & Technology  
**Program:** B.Sc Computer Engineering

Form no. (12): **Course Specification**

**1- Course Data**

Course Code: <b>CC528</b>	Course Title: <b>Computer Systems Performance Analysis</b>	Academic Year/Level: year <b>4,5</b> / semester <b>7,8,9,10</b>
Specialization: <b>Computer Engineering</b>	<b>Credit Hours: 3    Lecture: 2    Tutorial: 2    Lab: 0</b>	<b>Prerequisite</b>

**2- Course Aim**

An introduction to the use of computational methods for the understanding of biological systems at the molecular level. Like modern biologists who have to master the dense language of mathematics and computer programming, mathematicians and engineers working in bioinformatics have to learn the language of biology. Bioinformatics merges the two fields, and adds a healthy dose of statistics, combinatorics, and other branches of mathematics. Intended for undergraduate students in computer engineering interested in learning about algorithms and computational methods, mathematics and statistics and in applications of those fields to molecular biology.

**3- Intended Learning Outcomes**

<b>a- Knowledge and Understanding</b>	<p>[a1] Concepts and theories of mathematics and sciences, appropriate to the computer engineering.</p> <ul style="list-style-type: none"> <li>Utilize formal queuing theory for performance modeling .</li> <li>Describe the issues of ever shortening time views.</li> </ul> <p>[a5] Engineering principles in the fields of logic design, circuit analysis, machine and assembly languages, computer organization and architectures, memory hierarchy, advanced computer architectures, embedded systems, signal processing, operating systems, real-time systems and reliability analysis.</p> <ul style="list-style-type: none"> <li>Study fundamental metrics used in operational performance analysis</li> </ul> <p>[a6] Related research and current advances in the field of computer software and hardware and contemporary engineering topics.</p> <ul style="list-style-type: none"> <li>Analyze Multi-computer system and study their performance.</li> <li>Analyze Client-Server system and the factors affecting their performance</li> <li>Give real life examples.</li> </ul>
<b>b- Intellectual Skills</b>	<p>[b4] Assess and evaluate the characteristics and performance of components, systems and processes and investigate their failure.</p> <ul style="list-style-type: none"> <li>Discover the performance of a specific platform.{Linux, Solaris, Windows}</li> <li>Study time as a performance metric</li> <li>Identify queuing models.</li> <li>Apply queuing models for computer systems.</li> </ul>

<b>c- Professional Skills</b>	<p>[c3] Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment, wide range of analytical tools, techniques, and software packages pertaining to the computer engineering to design experiments, collect, analyze and interpret results and develop required computer programs.</p> <ul style="list-style-type: none"> <li>• Hands on simulation tools to study various problems.</li> <li>• Furnishes mathematical tools to meet several issues.</li> </ul>
<b>d- General Skills</b>	<p>[d4] Search for information and engage in life-long self-learning computer engineering and refer to relevant literatures.</p> <ul style="list-style-type: none"> <li>• Verify theory with practice</li> <li>• Practice as IT professionals , system administrators, software developers, and performance test engineers.</li> </ul>

#### 4- Course Content

<b>Week No.1</b>	Course Overview
<b>Week No.2</b>	Time as a performance metric.
<b>Week No.3</b>	Time as a performance metric.
<b>Week No.4</b>	Introduction to queuing models.
<b>Week No.5</b>	Introduction to queuing models.
<b>Week No.6</b>	Queuing models for computer systems.
<b>Week No.7</b>	Queuing models for computer systems.
<b>Week No.8</b>	7th Week Exam
<b>Week No.9</b>	Multicomputer analysis.
<b>Week No.10</b>	Multicomputer analysis.
<b>Week No.11</b>	12th Week Exam.
<b>Week No.12</b>	Client-Server analysis.
<b>Week No.13</b>	Client-Server analysis.
<b>Week No.14</b>	Revision
<b>Week No.15</b>	Revision
<b>Week No.16</b>	Presentation of projects and Final Exam.

#### 5- Teaching and Learning Methods

<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Tutorials</li> <li>• Reports &amp; sheets</li> <li>• Laboratories</li> <li>• Seminars</li> </ul>
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#### 6-Teaching and Learning Methods for Students with Special Needs

<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Tutorials</li> <li>• Reports &amp; sheets</li> <li>• Laboratories</li> <li>• Seminars</li> </ul> <p>The academic advisors of each student, as well as dedicated department TAs monitor the students' progress and solve any problem he/she may encounter.</p>
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#### 7- Student Assessment

<b>a-Procedures used</b>	<p>1-Written Examinations to assess The Intended Learning Outcomes.</p> <p>2-Class Activities (Reports, Discussions, -----) to assess The Intellectual Skills.</p>
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<b>b- Schedule:</b>	Assessment 1 Assessment 2 Assessment 3 Assessment 4	7 <sup>th</sup> Week Written Exam 12 <sup>th</sup> Week Written Exam Continuous Assessments 16 <sup>th</sup> Week Final Written Exam
<b>c- Weighing of Assessment</b>	7 <sup>th</sup> Week Examination 12 <sup>th</sup> Week Examination Final-term Examination Oral Examination Practical Examination Semester Work Total	30 % 20 % 40 % 0 % 0 % 10 % 100%

#### 8- List of References:

<b>a- Course Notes</b>	
<b>b- Required Books</b> (Textbooks)	Neil J. Gunther. Analyzing Computer system Performance with PERL:: PDQ. Springer-Verlag. 2005.
<b>c- Recommended Books</b>	<ul style="list-style-type: none"> <li>• Elaine Rich, Kevin Knight, Artificial intelligence, McGrawHill Inc, 1995</li> <li>• Peter Jackson, Introduction to Expert Systems, Addison Wesley, 3rd edition, 1999.</li> <li>• Ivan Bratko, Prolog programming for AI, Addison Wesley, 3rd edition, 2000.</li> </ul>
<b>d- Periodicals, Web Sites, etc.</b>	N/A

**Course Instructor:**  
Prof. Dr. Magdy Saeb

**Head of Department:**  
Prof. Dr. Mohamad AbouEI-Nasr

**Program Manager:**  
Prof. Dr. Mohamad AbouEI-Nasr