



University: *Fayoum University*  
 Faculty: *Computers and Information*  
 Department: *Information Systems*



### Course Specification

1- Basic Information		
Code: CSC 251	Course Title: Object Oriented Programming	Year/Level: Second year – First term
Programme: B.Sc degree in Information Systems	Number of units:	Lecture: 3 hrs/ week
		Tutorial: 0 hrs/ week
		Practical: 3 hrs/ week

<b>2- Aims of Course:</b>	This course introduces the object-oriented approach to problem-solving, program design, coding and testing using the C++ programming language. Emphasis is placed upon developing software from reusable components. Concepts covered include data hiding, code reuse through inheritance, polymorphism, templates, exception handling, developing appropriate class hierarchy and code maintenance for large software projects.
---------------------------	--

3- Intended Learning Outcomes	
<b>A- Knowledge and Understanding:</b>	<p>A2. List the Fundamental topics in Computer Science and Information systems related to software engineering principles, computer organization and architecture.</p> <p>a1. Explain the concept of Object and classes</p> <p>a2. Explain the concept of inheritance</p> <p>A3. Demonstrate the essential mathematics and physics relevant to computer science</p> <p>a3 explain architecture of functional oriented design</p> <p>A4. Explain essential concepts, principles, and theories related to computer science such as operating system.</p> <p>a4.Explain Data flow diagrams, structure charts</p>
<b>B- Intellectual Skills:</b>	<p>B4. Apply solutions to a computer science problem, follow-up on solution to verify it, and if necessary restrict the solution methodologies upon the results.</p> <p>b1. Transform knowledge of data dictionaries, deriving structure charts, design examples.</p> <p>b2Explain the concept of contractor and distractor</p> <p>B5.Discuss factors other than computational efficiency that influence the choice of algorithms, such as programming time, maintainability, and the use of application-specific</p>

	<p>patterns in the input data .</p> <p>b3. Explain efficiency of OOP on software performance</p>
<b>C- Professional and Practical Skills:</b>	<p>C8. Deploy appropriate tools for the construction and documentation of computer-based systems that are used to solve practical problems</p> <p>c1. Explain data dictionary concept as documentation tool.</p> <p>c2. Explain UML as designing tool</p> <p>C9. Deploy different modeling techniques to model and analyze real life computing problems.</p> <p>c3. Restructuring ordinary programs to OOP.</p> <p>C11. Develop a range of fundamental research skills that enable the graduate to continuously increase his knowledge, advance his career and pursue graduate studies.</p> <p>c4. User interface design: User interface design objectives, interface metaphors.</p>
<b>D- General and transferable Skills</b>	<p>D3. Work as a member of a development team, recognizing the different roles within a team and different ways of organizing teams.</p> <p>d1. Make project groups among students</p> <p>d2. Perform system analysis to measure performance</p> <p>D6. Demonstrate skills in team work, team management, time management and organizational skills.</p> <p>d3. Apply black box programming techniques.</p>

<b>4-Course Content:</b>	<ol style="list-style-type: none"> <li>1. Objects: Object and classes</li> <li>2. inheritance through, a design example</li> <li>3. deriving an object oriented design</li> <li>4. Functional oriented design: Data flow diagrams, structure charts,</li> <li>5. data dictionaries, deriving structure charts, design examples,</li> <li>6. concurrent systems design.</li> <li>7. User interface design: User interface design objectives,</li> <li>8. interface metaphors,</li> <li>9. WIMP (Window, Icons, Menus, and Pointing) interfaces using color displays.</li> </ol>
--------------------------	--

<b>5- Teaching and Learning Methods:</b>	<ol style="list-style-type: none"> <li>1. Lectures</li> <li>2. Tutorials</li> <li>3. Computer-lab Sessions</li> <li>4. Practical lab work</li> <li>5. Class discussions</li> <li>6. Internet searches</li> <li>7. Problem-based Learning</li> </ol>
--	---

**6- Teaching and Learning Methods for handicapped students :**

-

**7- Student Assessment**

<b>A- Assessment Methods:</b>	1. Assignments and Quizzes 2. Midterm written exam 3. Oral exam 4. Practical exam 5. Final written exam
<b>B- Assessment schedule:</b>	Midterm Examination: Week 8 Mid-Term Examination: Week 13 Oral Examination: Week 14 Final Examination: Week 15
<b>C- Weighting of assessments:</b>	Assignments and Quizzes: 0% Mid-Term Examination: 8% Oral Examination: 8% Practical Examination: 12% Final-term Examination: 72%

**8- Books and References**

<b>A- Notes:</b>	Handouts and notes prepared by the instructor
<b>B- Essential Books (Text Books):</b>	Object Oriented Programming in C++, Primer (5th Edition)(2012)
<b>C- Recommended Books:</b>	-
<b>D- Periodicals, Web sites, ... etc</b>	▪ <a href="http://www.cplusplus.com/">http://www.cplusplus.com/</a>

Course Professor: Dr. Mohamed Hassan    Department Head: Dr.Amira Edress

**Course Content Intended Learning Outcomes Matrix**

**Course Title:** Object Oriented Programming

**Course Code:** CSC 251

Course Content	Week	Knowledge & Understanding			Intellectual Skills			Professional & Practical Skills								General & Transferable Skills		
		a1	a2	a3	b1	b2	b3	C1	C2	C3	C4	C5	C6	C7	C8	d1	d2	d3
1. Objects: Object and classes	1:2	x	x	x	x	x	x	x		x				x		x	x	x
2. inheritance through, a design example	2:3	x	x	x	x	x	x			x				x		x	x	x
3. deriving an object oriented design	4:5	x	x	x	x	x	x			x				x		x	x	x
4. Functional oriented design: Data flow diagrams, structure charts,	6	x	x	x	x	x	x		x			x	x			x	x	x
5. data dictionaries, deriving structure charts, design examples,	7	x	x	x	x	x	x				x			x	x	x	x	x
6. Midterm Exam	8																	
7. concurrent systems design.	9		x	x	x	X	x								x	x	x	x
8. User interface design: User interface design objectives,	10		x	x	x	X	x					x				x	x	x
9. interface metaphors,	11		x	x	x	X	x			x						x	x	x
10. WIMP (Window, Icons, Menus, and Pointing) interfaces using color displays.	12	x	x	x	x	x	x	x					x			x		x
11. Polymorphism	13		x	x	x	X	x						x			x	x	x
12. Overloading, Templates and Exceptions	14	x	x		x	x	x			x	x	x				x	x	x

Course coordinator: Dr. Mohamed Hassan

Head of Department: Dr. Amira Edress