Mansoura University

Faculty of Computers and Information Sciences

Course Specifications of

Object Oriented Programming – CS123P– 2017/2018

University: Mansoura University **Faculty**: Computer and Information Sciences

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Program on which the course is given: General

Department offering the course: Department of Computer Science

Academic year/ Level: First Year

Date of specification approval:

A- Basic Information

Title : Object Oriented Programming **Code :** CS123P

Hours : 4 **Lecture :** 2 **Tutorial :0** **Practical :2**

B- Professional Information

1- Overall Aims of the Course

This course aims to present the basic concepts and techniques which form the object oriented programming paradigm in order to prepare undergraduates for the programming work they will undertake during their study in in the faculty of computer and subsequently. This course provides an introduction to object oriented programming (OOP) . Students completing the course should know the fundamentals of object oriented programming including abstract data types, encapsulation, inheritance and polymorphism, ..etc. and how to implement them in an object oriented language (e.g. C# or Java)

2- Intended Learning Outcomes of the course (ILOs)

By completing this course successfully, the student will be able to:

a- Knowledge and Understanding

- **a1** Essential facts, concepts, principles and theories relating to computing and information and computer applications as appropriate to the program of study.
- **a3** Tools, practices and methodologies used in the specification, design, implementation and evaluation of computer software systems.
- **a7** Principals of generating tests which investigate the functionality of computer programs and computer systems and evaluating their results.
- **a13** Use high-level programming languages.
- **a14** Demonstrate basic knowledge and understanding of a core of analysis, algebra, applied mathematics and statistics.
- **a19** Select advanced topics to provide a deeper understanding of some aspects of the subject, such as hardware systems design, object-oriented analysis and design, and artificial intelligence, and parallel and concurrent computing

b- Intellectual Skills

- b1. Analyze computing problems and provide solutions related to the design and construction of computing systems.
- b2. Realize the concepts, principles, theories and practices behind computing and information as an academic discipline.
- b3 Identify criteria to measure and interpret the appropriateness of a computer system for its current deployment and future evolution.
- b4. Analyze, propose and evaluate alternative computer systems and processes taking into account limitations, and quality constraints.
- b5. Make ideas, proposals and designs using rational and reasoned arguments for presentation of computing systems.
- b6. Evaluate the results of tests to investigate the functionality of computer systems.
- b10 Define traditional and nontraditional problems, set goals towards solving them, and observe results.
- b11. Perform comparisons between (algorithms, methods, techniques...etc).
- b17. Identify a range of solutions and critically evaluate and justify proposed design solutions.
- b19. Generate an innovative design to solve a problem containing a range of commercial and industrial constraints.

c- Professional and Practical Skills

- c2 Implement comprehensive computing knowledge and skills in projects and in deployment of computers to solve position practical problems.
- c3 Deploy the equipment and tools used for the construction, maintenance and documentation of computer applications.
- c5 Develop a range of fundamental research skills, through the use of online resources, technical repositories and library-based material
- c8 Handle a mass of diverse data, assess risk and draw conclusions.

c15 Specify, design, and implement computer-based systems.

c16 Evaluate systems in terms of general quality attributes and possible tradeoffs presented within the given problem.

d- General and Transferable Skills

d1 Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.

d2 Demonstrate skills in group working, team management, time management and organizational skills.

d3 Show the use of information-retrieval.

d4 Use an appropriate mix of tools and aids in preparing and presenting reports for a range of audiences, including management, technical, users, industry or the academic community.

3- Contents

No	Course Content	Lecture	Practical	Total
1	Introduction to Theoretical OOP concepts	2	2	4
2	The Basic structure of Classes (Member Variables, Constructors, Methods), Types of access classifiers	2	2	4
3	Method Overloading and Parameter Passing	2	2	4
4	Properties in Classes	2	2	4
5	Static Data and Static Methods and Static Properties	2	2	4
6	Operator Overloading	2	2	4
7	Arrays as Objects and Indexers	2	2	4
8	Arrays of Objects	2	2	4
9	Inheritance and Polymorphism	4	4	8
10	Generics as advanced OOP concept	2	2	4
11	Review the theoretical OOP concepts and its relation to the Practical concepts	2	2	4
	Total Hours	**24**	**24**	**48**

4- Assessment Schedule

Assessment Method	No.	Description	Week No.	Weight (%)
Assignments	1	Short Lab Practicals	1-6,8-12	20
Written Exams	2	Midterm Exam	7	10
Oral Exam	3	Oral questions	10	10
Written Exams	4	Final Exam	14	60
Total				100

5- List of references

5.1 Course Notes

- A paper Book prepared by the lecturer as course notes.

5.2 Reference Books (Text Books)

- "Object-Oriented Programming in C# Succinctly ", Sander Rossel., 1st Ed., 2016.
- "Object Oriented Programming using C#", Simon Kendal, 1st Ed., 2011.
- "C# Essentials: Programming the .NET Framework", Ben Albahari, Peter Drayton and Brad Merrill, 2nd Ed., 2010.

6- Facilities Required for Teaching and Learning

- Data show.
- Computer Lab

Course Content/ILO Matrix

Course Contents	a1	a3	a7	a13	a14	a19	b1	b2	b3	b4	b5	b6	b10	b11	b17	b19	c2	c3	c5	c8	c15	c16	d1	d2	d3	d4
Introduction to Theoretical Concepts of OOP	•							•								•										
The Basic structure of Classes (Member Variables, Constructors, Methods), Types of access classifiers	•			•			•	•	•	•	•		•	•	•	•	•				•	•				
Method Overloading and Parameter Passing				•		•	•	•	•		•		•	•	•	•	•				•	•				
Properties in Classes				•		•	•						•	•		•	•				•	•				
Static Data and Static Methods and Static Properties				•		•	•			•	•		•	•	•	•	•				•	•				
Operator Overloading				•		•	•		•	•	•		•	•		•	•				•	•				
Arrays as Objects and Indexers				•		•	•				•		•		•	•	•			•	•	•				
Arrays of Objects				•		•	•				•		•		•	•	•			•	•	•				
Inheritance and Polymorphism				•		•	•	•	•	•	•		•	•	•	•	•			•	•	•				
Generics as Advanced OOP concept	•			•		•	•	•	•	•	•	•	•	•	•	•	•				•	•				
Review the theoretical OOP concepts and its relation to the Practical concepts	•							•	•	•				•		•										

Learning Method/ILO Matrix

Course Contents	a1	a3	a7	a13	a14	a19	b1	b2	b3	b4	b5	b6	b10	b11	b17	b19	c2	c3	c5	c8	c15	c16	d1	d2	d3	d4
Lectures	•	•	•	•	•	•		•					•	•						•	•	•				
Tutorials				•	•		•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•

Assessment Methods/ILO Matrix

Assignment	a1	a3	a7	a13	a14	a19	b1	b2	b3	b4	b5	b6	b10	b11	b17	b19	c2	c3	c5	c8	c15	c16	d1	d2	d3	d4
Assignment		•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•
Midterm Exam	•	•	•	•	•	•	•	•	•	•			•	•	•	•				•	•	•	•			
Oral exam	•	•	•	•	•	•		•						•	•	•							•			
Final Exam	•	•	•	•	•	•	•	•	•	•			•	•	•	•				•	•	•	•			

Course Coordinator: Dr. Mohammed Alrahmawy

Head of Department: Dr. Samir Elmogy
Date : 2016- 2017