## Faculty of Computers and Information Technology

### Computer Programming-2

**Information :**

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| **Course Code :** | CS213 | **Level :** | Undergraduate | **Course Hours :** | 3.00- Hours |

**Department :** Faculty of Computers and Information Technology

**Instructor Information :**

| Title | Name | Office hours |
|---|---|---|
| Associate Professor | Ibrahim Eldesouky Fattoh Abdelmageed | |
| Lecturer | Amr Mansour Mohsen Afifi | 5 |
| Assistant Lecturer | Mahinda Mahmoud Samy Ahmed Zaki Zidan | 1 |
| Assistant Lecturer | Hadeer Khalid Tawfik El Zayat | 6 |
| Teaching Assistant | Hoda Ashraf Mohamed Mohamed Mostafa | |
| Teaching Assistant | Ola Mahmoud Mohamed Ahmed Baraya | |
| Teaching Assistant | Yomna Alaa Elsayed Aly Darwish | |
| Teaching Assistant | Donia Waleed Gamal Seddek Elsayed Hagag | |
| Teaching Assistant | Bayan Elsaeed Bedair Omar Elakhdar | |
| Teaching Assistant | Linah Mohammed Ibrahim Elsayed Ahmed Elnaghi | |
| Teaching Assistant | Ahmed Samy El Saeed Ali Abo Ragab | |
| Teaching Assistant | Hadeer Khaled Adel Abdelaziz | |
| Teaching Assistant | IBRAHIM AYMAN IBRAHIM AHMED TAGEN | |
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**Area Of Study :**

Explain the different object oriented programming concepts.
Analyze a given requirement to match the object oriented programming concepts.
Compare and select methodologies from range of techniques, theories and methods to develop an object oriented programming.

**Description :**

Object-oriented programming: data abstraction, encapsulation, classes, objects, templates, operator overloading, function overloading, inheritance, polymorphism, exception handling, and streams.

**Course outcomes :**

**a.Knowledge and Understanding: :**

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| 1 - | Apply the basic concepts and theories of algorithms using pseudo-code. |
| 2 - | Combine and evaluate different structured programming tools. |

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| 3 - | Use the concepts of inheritance, polymorphism, the Abstract classes, Interfaces and object oriented programming model. |
| 4 - | Analyze the object oriented programming logic, techniques and use in practical applications. |
| **b.Intellectual Skills: :** | |
| 1 - | Illustrate a set of methods for a given problem associated with their results |
| 2 - | Select appropriate methodologies and techniques for a given problem solution and setting out their limitations, restrictions and errors using object oriented programming. |
| 3 - | Evaluate and justify different solutions using well-defined object oriented programming criteria's. |
| 4 - | Compare and differentiate between algorithms, methods and techniques used in object oriented programming. |
| **c.Professional and Practical Skills: :** | |
| 1 - | Analyze, design, implement and test object oriented programming techniques to solve various problems. |
| 2 - | Apply and design methodologies of object oriented programming different supporting tools. |
| 3 - | Use human computer interaction principles in the construction and evaluation of user interfaces for object-oriented programming language applications. |
| **d.General and Transferable Skills: :** | |
| 1 - | Exploit a range of learning resources. |
| 2 - | Utilize effectively general computing facilities |

| **ABET Course outcomes :** | |
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| 1 - | Demonstrate adequate understanding of different object-oriented programming concepts. |
| 2 - | Analyze, compare, and select appropriate object-oriented programming techniques for solving complex computing problems. |
| 3 - | Demonstrate basic proficiency of developing object-oriented solutions for complex computing problems. |
| 4 - | Test, evaluate, and debug object-oriented programs to identify syntax and run-time errors. |

**Course Topic And Contents :**

| Topic | No. of hours | Lecture | Tutorial / Practical |
|---|---|---|---|
| Introduction to Computer Programming | 4 | 2 | 2 |
| Fundamentals of a JAVA Program- Data Types and Operators | 4 | 2 | 2 |
| Control Structures - Creating Conditional Statements | 4 | 2 | 2 |
| Creating Iteration Statements | 4 | 2 | 2 |
| Methods | 4 | 2 | 2 |
| Arrays | 4 | 2 | 2 |
| The conceptual basis of Object Orientated Programming | 4 | 2 | 2 |
| Primitive data types and data types as objects. Data Abstraction and encapsulation | 4 | 2 | 2 |
| Mid Term Exam | 2 | | |
| Classes and object as abstract data types | 4 | 2 | 2 |
| An object-oriented programming language syntax, creating objects from class definitions - Inheritance | 4 | 2 | 2 |
| OOP: Polymorphism, Abstract class, Interface. | 4 | 2 | 2 |
| Project presentation | 4 | 2 | 2 |

**Course Topic And Contents :**

| Topic | No. of hours | Lecture | Tutorial / Practical |
|---|---|---|---|
| Final Exam | 2 | | |

**Teaching And Learning Methodologies :**

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| Interactive Lectures including discussion |
| Practical Lab Sessions |
| Self-Study (Project / Reading Materials / Online Material / Presentations) |
| Case Studies |

**Course Assessment :**

| Methods of assessment | Relative weight % | Week No | Assess What |
|---|---|---|---|
| Assignments | 5.00 | 4 | |
| Final Exam | 40.00 | 14 | |
| Midterm Exam (s) | 20.00 | 9 | |
| Others (Participations) | 5.00 | | |
| Presentations | 5.00 | 12 | |
| Quizzes | 10.00 | 5 | |
| Team Work Projects | 10.00 | 12 | |

**Course Notes :**

Course Notes are available with all the slides used in lectures in electronic form on Learning Management System (Moodle)