POLI
ESCOLA SUPERIOR
TECNOLOGIA
GESTÃO
TÉCNICO
GUARDA

SUBJECT DESCRIPTION

MODELO

PED.013.03

Course	**Computer Science**						
Subject	**Programming**						
Academic year	2023/2024	*Curricular year*	1st	*Study period*	2nd semester		
Type of subject	Compulsory	*Student workload (H)*	Total: 168	Contact: 75	*ECTS*	6	
Professor(s)	José Alberto Quitério Figueiredo						

☒ *Area/Group Coordinator* ☐ *Head of Department*	*(select)*	José Carlos Martins da Fonseca

COMPLETED SUBJECT DESCRIPTION

1. LEARNING OBJECTIVES

Upon completion of the UC, students should be able to:

1. *Write and develop Java applications with graphical user interface.*

2. *Identify and apply the fundamental concepts of OOP.*

3. *Model classes and abstract data types in Java. (1000 characters max)*

2. PROGRAMME

1. *Introduction to Java as a programming language*
2. *Object Oriented Programming*
3. *Object Oriented Programming in Java*
4. *Data Structures*
5. *Exception Handling*
6. *Input/Output in Java*
7. *Graphical user interface*
8. *Java Database Connectivity*

3. COHERENCE BETWEEN PROGRAMME AND OBJECTIVES

Contents 1 to 8 are consistent with objective 1 "Write and develop Java applications with graphical user interface" because the set of principles, methods and programming techniques presented allow students to develop object oriented applications, written in Java that satisfy important properties, such as modularity, extensibility, robustness and generality. It also includes the elements and concepts of building user interfaces in Java, using the Java Swing components.

Content 2 is consistent with objective 2 "Identify and apply the fundamental concepts of OOP" because the concepts of object-oriented programming, including: classes and instances, messages and methods, encapsulation, inheritance and hierarchy, modularity, polymorphism are presented and developed.

Content 3 is consistent with objective 3 "Modeling classes and abstract data types in Java" because the concepts and techniques of object-oriented programming in Java are presented.

4. MAIN BIBLIOGRAPHY

Mandatory:

[1]   Figueiredo, José. "Introdução à Programação – Manual de Apoio à Unidade Curricular de Introdução à Programação", Instituto Politécnico da Guarda,2016.

[2]   Fernando Martins (2009), JAVA6 e Programação Orientada pelos Objectos, Tecnologias da Informação, FCA

[3]   Pedro Coelho (2009), Programação em Java - Curso Completo, FCA

Recommended:

[4]   Java How To Program (Early Objects) (10th Edition), H.M.Deitel and P.J.Deitel, Pearson Education International – Prentice Hall, 2014.

[5]   Thinking in Java, Bruce Eckel, 4th edition, http://www.mindviewinc.com/Books/TIJ4/, em 23 de Outubro de 2014.

[6]   Java Tutorials, Oracle, http://docs.oracle.com/javase/tutorial/index.html, em 23 de Outubro de 2014.

5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

Teaching methodologies: Lecture, Interactive lesson, Problem solving, Project

Evaluation methodologies:

Continuous evaluation

1.   Individual practical work: 40%

2.   In-class practical exercises: 30%

3.   Written test: 30% (minimum grade of 6 values)

Final exam evaluation

1.   Written test. (50%) (minimum grade of 6 values)

2.   Practical Test/Individual practical work: (50%)

6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES

Lectures are consistent with the objectives due to the need to provide students with the theory. It is necessary to introduce and illustrate each of the concepts and techniques of the fundamental paradigm of object oriented programming.

Interactive Lessons are consistent with the objectives for student/ teacher interaction to help learning the concepts in addition to the introduction of new ideas, perspectives and solutions that can be applied in the implementation, in the manipulation and study of different strategies for developing code using the oriented programming paradigm for Java objects.

Problem solving is consistent with the objectives for the application of theoretical concepts to practical exercises inspired realistically and related to the study helps to consolidate the material, enhancing know-how.

Group work is consistent with the goals since the work allows students to develop their individual capacities to organize and recognize the advantages of working in groups. On completion of their work, the students have to solve a problem with one dimension being required to apply most of the knowledge acquired. Group work also allows students to consolidate the knowledge acquired in the course and develop their ability to solve problems.

DATE

21 de fevereiro de 2024

SIGNATURES

Professor

_____
(signature)

Area/Group Coordinator

_____
(signature)