Democritus University of Thrace, Kavala, Greece
School of Science
Department of Informatics

Department of European and International Programmes – Erasmus+
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Proposed Course for incoming Erasmus students[1]

Responsible for the course (lecturer) (name, phone number, e-mail address)	Professor Lefteris Moussiades 0030 2510 462 346 lmous@cs.duth.gr
Title of the Course	**Object Oriented Programming**
ECTS credits	6
Short contents of the course	1. Object-Oriented Principles - Introduction to Object-Oriented Programming (OOP) - Key concepts: Classes, Objects, Methods, and Constructors 2. Encapsulation and Data Hiding - Access modifiers and getter/setter methods - Best practices for data encapsulation 3. Inheritance and Polymorphism - Inheritance hierarchy and the `extends` keyword - Polymorphism and method overriding - Interfaces and abstract classes 4. Abstraction and Interface Design - Abstract classes vs. Interfaces - Designing flexible and reusable code structures 5. Exception Handling - Basics of exceptions and the `try-catch` mechanism - Custom exceptions and error handling strategies 6. Collections and Generics - Collection framework: Lists, Sets, Maps - Working with generics for type safety 7. Best Practices and Code Quality - Proper use of design principles in OOP - Refactoring and clean coding practices
Aim of the course and target audience	• The Object-Oriented Programming course aims to equip students with a thorough understanding of the core principles of object-oriented programming (OOP) and their application in Java. By the end of the course, students will be able to design, develop, and implement robust, efficient, and modular programs using Java's OOP capabilities. Students will gain hands-on experience in managing data encapsulation, inheritance, polymorphism, and abstraction to solve real-world programming challenges effectively.

	• Target audience: Undergraduate students of Informatics/ Computer Science OR Education
Teaching Methods duration and Evaluation	Lectures: 26 hours Hands-on exercises: 26 hours Evaluation: 100% Individual AND/OR Group Assignments
Offered Period	Fall semester
Indicative bibliography	1. Core Java Volume I – Fundamentals by Cay S. Horstmann (11th Edition) 2. Effective Java by Joshua Bloch (3rd Edition) 3. Java: The Complete Reference by Herbert Schildt (11th Edition)

[1] Could be easily used and offered for TS movement to our Erasmus partners