COURSE DESCRIPTION

1. Program Information

1.1 Institution	**"Alexandru Ioan Cuza"**
1.2 Faculty	**Faculty of Computer Science**
1.3 Department	**Department of Computer Science**
1.4 Field of Study	**Computer Science**
1.5 Study Cycle	**Bachelor**
1.6 The Degree / Qualification	**Computer Science / Bachelor**

2. Course Information

2.1 Course Title			**Advanced Programming**				
2.2 Course Teacher			**Lect. Dr. Cristian Frăsinaru**				
2.3 Seminary Teacher			**Lect. Dr. Cristian Frăsinaru**				
2.4 Study Year	**II**	**2.5** Semester	**2**	**2.6** Evaluation	**E**	**2.7** Course Status	**OB**

* OB - Mandatory / OP - Optional

3. Total estimated hours (hours per semester and didactic activities)

3.1 Hours per week	**4**	3.2 course	**2**	3.3 seminary / lab	**2**
3.4 Total hours in Curriculum	**56**	3.5. course	**28**	3.6. seminary / lab	**28**
Time Distribution					hours
Manual study, Course support, Bibliography, and others					**14**
Supplementary Documentation in library, in electronic forums, and on the field					**14**
Seminaries/laboratories preparation, homeworks, reports, portfolios and essays					**28**
Tutoring					-
Evaluation					**1**
Other activities					-

3.7 Total hours of individual study	**56**
3.8 Total hours per semester	**116**
3.9 Number of credits	**5**

4.Preconditios (if applicable)

4.1 Curriculum	**Object Oriented Programming, Data Structures**
4.2 Competence	**Knowledge of basic principles of programming, the concepts of class, object, C ++ syntax.**

5. Conditions (if any)

5.1 For course	Bonus for attendance
5.2 For seminary / laboratory	**Mandatory activity**

6. Specific Skills Acquired

Professional	**C1.** Being able to use Java SE programming platform Java. **C2.** Being able to use techniques and technologies for developing software systems. **C3.** The ability to create complex applications that integrates the entire range of standard programming tools.
Transversal	**CT1.** The ability to develop Java applications for inter-disciplinary problems,including: network programming, concurrent programming, database management systems, Web technologies, etc. **CT2.** The ability to use modeling languages and tools (UML), common design patterns, specific tools for code analysis and optimization, documentation generators, etc.

7. Course Objectives (from the grid of specific skills acquired)

7.1 Overall objectives	Deepening of the standard aspects of object-oriented programming, learning advanced techniques and technologies for the design and development of software systems.
7.2 Specific objectives	**O1.** Knowledge of *programming platform* and *virtual machine* concepts **O2.** Detailed knowledge of the Java language syntax. **O3.** Knowledge of main technologies included in the standard Java Development Kit (JDK) . **O4.** Creating complex applications with graphical user interface.

8. General Description

8.1	**Course**	**Teaching methods**	**Comments** (hours and references)
1.	Introduction: Java Platform Standard Edition	Exposure	2
2.	Objects and classes.	Exposure	2
3.	Interfaces. Generic types. Databases.	Exposure	2
4.	Exception handling. Data streams. Working with files.	Exposure	2
5.	Graphical user interfaces. Swing technology.	Exposure	2

6.	Graphics. JavaFX technology.	Exposure	2
7.	Concurrent programming. Working with threads.	Exposure	2
8.	Consultations	Consultations	2
9.	Network programming. RMI technology.	Exposure	2
10.	Working with relational databases using JDBC.	Exposure	2
11.	Object/Relation Mapping. Java Persistence API.	Exposure	2
12	Working with classes and objects dynamic. Reflections API. Use annotations.	Exposure	2
13.	Internationalization and localization. Introduction to Android programming.	Exposure	2
14.	Introduction to Java Enterprise Edition.	Exposure	2

Bibliography

"The Java Language Specification, Java SE Edition", by James Gosling, Bill Joy, Guy Steele, Gilad Bracha, Alex Buckley
"Thinking in Java", by Bruce Eckel
"Think Java (How to Think Like a Computer Scientist)" Allen B. Downey
"Curs Practic de Java", by Cristian Frăsinaru (in romanian)
"The Java Tutorials" https://docs.oracle.com/javase/tutorial/

Main Reference:
http://profs.info.uaic.ro/~acf / java/

8.2	Seminary / Laboratory	Teaching methods	Comments (hours and references)
1-14	Creating a Java application that uses the concept presented in the current course. Exposure of the requirements and presentation of a partial implementation that will be continued by students. Verifying the homeworks proposed in the previous week.	Exposure, Verification	2 x 14

References
Course Bibliography

9 Course content synchronization with the expectations of the community representatives, professional associations and employers from the program domain

Java is one of the most popular programming language and the Java platform is widely used in many software companies. The knowledge and programming skills acquired through this course will allow the students to become good developers and work in complex software projects.

10. Evaluation

Activity type	10.1 Evaluation Criteria	10.2 Evaluation methods	10.3 The weight of each evaluation form (%)
10.4 Course	Correct understanding of the principles of programming on the Java platform. The ability to describe clear technical solutions for concrete problems. Knowing the Java language syntax and basic APIs. The quality of the responses.	Written test	40% (20 points)
10.5 Seminary / Laboratory	The ability to write programs using Java syntax. The ability to use Java SE platform technologies and tools. The ability to apply design patterns and integrate various programming techniques. The quality of the source code.	Practical assignments. Personal projects. Bonuses.	60% (30 points)
10.6 Minimal performance standards			
In order to promote, one must meet the following criteria: ● Minimum **10 points** at laboratory. ● Minimum **5 points** at the final exam. Gauss distribution is applied on the the total number of points. The marks are established in accordance with the ECTS criteria.			

Date
May 8, 2018

Course Teacher
Lector.dr. Cristian Frăsinaru

Seminary / Laboratory
Lector.dr. Cristian Frăsinaru

Departament Date of Approval

Director of the Departament