



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	Master
1.6 The Degree / Qualification	Computer Science / Master

2. Course Information

2.1 Course Title	Java Technologies						
2.2 Course Teacher	Lect. Dr. Cristian Frășinaru						
2.3 Seminary Teacher	Lect. Dr. Alex Moruz, Asist. Dr. Cosmin Irimia						
2.4 Study Year	M1	2.5 Semester	1	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					175
3.9 Number of credits					7

4.Preconditions (if applicable)

4.1 Curriculum	Advanced Programming, Web Technologies, Network Programming
4.2 Competence	Knowledge of the Java programming platform, network protocols (HTTP), markup languages (HTML), the concept of Web application

5. Conditions (if any)

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

**6. Specific Skills Acquired**

Pr of es si on al	<p>C1. Being able to use Java EE programming platform Java and Spring Boot framework.</p> <p>C2. The ability to use modern techniques and technologies in order to develop Web applications and <i>enterprise</i> software systems.</p> <p>C3. The ability to create complex applications that integrate the whole range of specific tools of Web and Enterprise programming.</p>
Tr an sv er sa l	<p>CT1. The ability to develop Java EE / Spring Boot applications for inter-disciplinary problems, including: network programming, concurrent programming, database management systems, Web technologies, etc.</p> <p>CT2. The ability to use modeling languages and tools (UML), common design patterns, specific tools for code analysis and optimization, documentation generators, etc.</p>

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

7.1 Ov er all ob jec tiv es	Deepening of the standard aspects of server-side programming and Web interfaces, learning advanced techniques and technologies for the design and development of software systems.
7.2 Sp eci fic ob jec tiv es	<p>O1. Knowledge of <i>programming platform, enterprise application</i> and <i>application server</i> concepts.</p> <p>O2. Knowledge of the programming techniques used in Web and Enterprise applications.</p> <p>O3. Detailed knowledge of the main technologies included in the specifications of the Java Enterprise Edition Platform (Java EE) .</p> <p>O4. Detailed knowledge of the Spring Boot framework.</p> <p>O5. Creating complex Enterprise-level applications.</p>

8. General Description

8.1	Course	Teaching methods	Comments (hours and references)
1.	Introduction to Java EE. Java Servlet Technology.	Exposure	2
2.	Spring Boot	Exposure	2
3.	Beans, Dependency Injection, Crosscutting Concerns	Exposure	2
4.	Java Persistence API (JPA), Spring Data JPA	Exposure	2



5.	API Development: RESTful Services	Exposure	2
6.	Securing Applications and Services	Exposure	2
7.	Asynchronous Communication and Messaging	Exposure	2
8.	Consultations	Consultations	2
9.	Microservice Architectures	Exposure	2
10.	Building Cloud-Native Applications	Exposure	2
11.	MicroProfile - Enterprise Java for Microservices (continued)	Exposure	2
12.	Data Management in Microservices.	Exposure	2
13.	Complementary Technologies for Enterprise Application Development	Exposure	2
14.	Case Studies	Exposure	2

Bibliography

“Java Platform, Enterprise Edition: The Java EE Tutorial”, <https://docs.oracle.com/javaee/7/tutorial/>

“Spring Boot Official Documentation”, <https://spring.io/>

“Microservices Patterns”, <https://microservices.io/>

“The Java Language Specification, Java SE Edition”, James Gosling, Bill Joy, Guy Steele, Gilad Bracha, Alex Buckley

Main Reference:

<https://edu.info.uaic.ro/tehnologii-java>

8.2	Seminary / Laboratory	Teaching methods	Comments (hours and references)
1-14	Creating a Java EE / Spring Boot application that uses the concepts 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 using Java EE platform / Spring Boot framework. The ability to describe clear technical solutions for concrete problems. Knowing the standard APIs. The quality of the responses.	Written test	30%
10.5 Seminary / Laboratory	The ability to use Java EE platform / Spring Boot 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.	70%
10.6 Minimal performance standards			
In order to promote, one must meet the following criteria:			
<ul style="list-style-type: none">• The ability to write medium and high complexity, enterprise-type applications using the Java EE programming platform / Spring Boot framework.• Theoretical understanding of the concepts behind enterprise technologies.			
The marks are established in accordance with the ECTS criteria.			

The classes will take place according to the timetable.

Date
26.09.2025

Course Teacher
Lect. Dr. Cristian Frăsinaru

Seminary / Laboratory
Lect. Dr. Cristian Frăsinaru
Lect. Dr. Alex Moruz
Asist. Dr. Cosmin Irimia

Department Date of Approval

Director of the Department