

**Important information regarding ongoing contest, posted accordingly to  
art. 7, alin. 9 al H.G. 1339/2023**

**FACULTY OF SCIENCES**  
***Department of Computer Science***

**Description of the position:**

**Associate Professor, pos. 10,**

**Disciplines: Java Technologies; Database Fundamentals; Informatics; Methods in Analysis of Algorithms**

The scientific domain: INFORMATICS

**Attributions/activities** related to the position, including teaching and activity types that are related to teaching and research, respectively:

I. Teaching-related activities:

Lecturing	<b>168 hours</b>
Seminars, Laboratories, Projects	<b>112 hours</b>
Other activities	<b>168 hours</b>
<b>Total 448 hours</b>	<b>Average hours per week 16 conventional hours</b>

II. Scientific and methodical preparation, and other activities for the benefit of education: **972 hours**

III. Scientific research activity: **300 hours** (development of conference papers, writing papers and books)

**TOTAL: 1720 hours**

**Competition subjects**, including talks, lecturing or others, or themes from which members of the commission may choose the subjects for the effective tests:

**I. Java technologies**

1. Basic elements of the Java language.
2. Exceptions and their handling in Java.
3. Java Threads.
4. Java Database Connectivity – JDBC: JDBC drivers, accessing a database using JDBC technology.

**II. Database Fundamentals**

1. Relational Database Design: Conceptual Design, Logical Design, Physical Design.
2. Querying databases: SELECT statement, reunion, difference, Cartesian product, intersection, selection, projection, union.
3. Transactions: structure of a transaction, applications.

### III. Informatics

1. Information and communication technology (IT&C) and knowledge processing elements: computing systems, operating systems, programming languages, application programs, operating/browsing environments, computer networks, expert systems, intelligent systems, Internet.
2. Architecture and software structure of computing systems: operating systems, utilities, operating/solving/browsing/programming environments, graphic interfaces, text/image processors, communication programs, e-mail services, web services, special applications.

### IV. Methods in Analysis of Algorithms

1. Checking the correctness of the algorithms. The stages of verifying the correctness of algorithms.
2. Analysis of non-recursive algorithms. Execution time estimation.

### Selected bibliography:

- 1) Bruce Eckel, Thinking in Java, Pearson; 4th edition, 1150 pages, ISBN-10: 0131872486, ISBN-13: 978-0131872486, 2006.
- 2) Herbert Schildt, Java: The Complete Reference, Eleventh Edition, McGraw Hill; 11th edition, 1248 pages, ISBN: 1260440230, 2018.
- 3) Gabriel Stoian, Claudiu Ionuț Popîrlan, Tehnologii Java pentru dezvoltarea aplicațiilor (in Romanian), Computer Science Series, Universitaria Publishing, Craiova, 214 pages, ISBN: 978-606-510-724-3, 2009.
- 4) Stephen Chin, Melissa McKay, Ixchel Ruiz, Baruch Sadogursky, DevOps Tools for Java Developers, O'Reilly Media, Inc., ISBN: 9781492084020, 2022.
- 5) David Matuszek, Quick Java, 1st Edition, Chapman and Hall/CRC, New York, 234 pages, ISBN9781003402947, 2023.
- 6) C.J. Date, Introduction to Database Systems, Pearson, 8th edition, 1040 pages, ISBN: 0321197844, 2004.
- 7) Constantin Lupșoiu, Dorel Săvulea, Sisteme de baze de date-fundamente teoretice (in Romanian), Sitech Publishing, Craiova, 257 pages, ISBN 978-973-662-532-9, 2010.
- 8) Ramez Elmasri, Shamkant Navathe, Fundamentals of Database Systems, Pearson, 7th edition, 1280 pages, ISBN: 0133970779, 2015.
- 9) Daniela Dănciulescu, Bazele Tehnologiei Informației (in Romanian), Universitaria Publishing, Craiova, 215 pages, ISBN 978-973-742-567-6, 2014.
- 10) Amrinder Arora, Analysis and Design of Algorithms, Cognella Academic Publishing, 184 pages, ISBN: 1793520437, 2021.

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