

**SYLLABUS / FIȘA DISCIPLINEI**
**1. Information on the study programme / Date despre programul de studii**

1.1. Institution / Instituția de învățământ superior	Universitatea de Vest din Timișoara
1.2. Faculty / Facultatea	Matematică și Informatică
1.3. Department / Departamentul	Computer Science (Informatică)
1.4. Study program field	Computer Science (Informatică)
1.5. Study cycle/ Ciclul de studii	Bachelor / licență
1.6. Study programme / Programul de studii / calificarea*	Computer Science / Informatică în limba engleză / Database administration / <i>Administrator baze de date - 252101</i> ; <i>Computer network administration / Administrator de rețea de calculatoare - 252301</i> ; <i>Analyst / Analist - 251201</i> ; <i>Research assistant in computer science / Asistent de cercetare în informatică - 214918</i> ; <i>Teacher in secondary schools / Profesor în învățământul gimnazial - 233002</i> ; <i>Programmer / Programator - 251202</i> ; <i>Software systems designers / Proiectant sisteme informatice - 251101</i>

**2. Information on the course / Date despre disciplină**

2.1. Title of the course / Denumirea disciplinei		Databases Administration					
2.2. Teacher in charge of the course / Titularul activităților de curs		Monica Sancira					
2.3. Teacher in charge of the seminar / Titularul activităților de seminar		Monica Sancira					
2.4. Study year / Anul de studii	2	2.5. Semester / Semestrul	2	2.6. Examination type / Tipul de evaluare: E(xam)/C(olloquim)	C	2.7. Course type / Regimul disciplinei: M(andatory)/ E(lective)/ F(acultative)	DO

**3. Estimated study time (number of hours per semester) / Timpul total estimat (ore pe semestru al activităților didactice)**

3.1. Attendance hours per week / Număr de ore pe săptămână	3	out of which din care: 3.2 lecture/ curs	1	3.3. seminar/laborator	2
3.4. Attendance hours per semester / Total ore din planul de învățământ	42	out of which: 3.5 lecture / curs	14	3.6. seminar/laborator	28
<b>Distribution of the allocated amount of time / Distribuția fondului de timp*</b>					<b>hours/ ore</b>
Individual study / Studiu după manual, suport de curs, bibliografie și notițe					35
Supplementary documentation at library or using electronic repositories / Documentare suplimentară în bibliotecă, pe platformele electronice de specialitate					15

Preparing for laboratories, homework, reports etc. /Pregătire seminarii/laboratoare, teme, referate, portofolii și eseuri	40
Exams / Examinări	6
Tutoring / Tutorat	8
3.7. Total number of hours of individual study / Total ore studiu individual	104
3.8. Total number of hours per semester / Total ore pe semestru	146
3.9. Number of credits (ECTS) / Număr de credite	5

#### 4. Prerequisites (if it is the case) / Precondiții (acolo unde e cazul)

4.1. curriculum / de curriculum	Databases I
4.2. skills / de competențe	Elementary knowledge of databases

#### 5. Requirements (if it is the case) / Condiții (acolo unde e cazul)

5.1. for the lecture / de desfășurare a cursului	Lecture room with whiteboard and video projector
5.2. for the seminar, laboratory / de desfășurare a seminarului/laboratorului	Laboratory room with computers (Oracle installed)

#### 6. Acquired skills / Competențe specifice acumulate

Professional skills / Competențe profesionale	<ul style="list-style-type: none"> <li>• Knowledge of an actual database environment used on the real market (ORACLE), a superior understanding of the functionality of a real computer system, the practical application of the knowledge of general theory of relational databases, operating systems and computer networks .</li> <li>• Managing and designing relational databases, especially Oracle databases</li> </ul>
Transversal skills / Competențe transversale	<ul style="list-style-type: none"> <li>• The awareness of a good knowledge importance of the computer system for computer practice. Valuing correctly the information security and data privacy. Understanding the balance between cost and benefit in data security systems</li> </ul>

#### 7. Objectives of the course / Obiectivele disciplinei (reieșind din grila competențelor specifice acumulate)

7.1. General objective / Obiectivul general al disciplinei	1. Database – analyzing and querying
7.2. Specific objectives / Obiectivele specifice	Knowledge objectives(KO): 1. Knowledge of general theory related to relational databases 2. Knowledge of query language SQL

**8. Content / Conținuturi\***

<b>8.1. Lecture / Curs</b>	<b>Teaching strategies / Metode de predare</b>	<b>Remarks, details / Observații</b>
L1.(2h) Introduction. Oracle architectural components.	Lecture, conversation, illustration	References: 1. M. Sancira– lecture slides – classroom 2. Oracle Database 12c DBA, 2015. 3. Oracle database 12c : new features, 2017.
L2.(2h)Oracle Instance Management. Oracle Network Environment Configuration.	Lecture, conversation, illustration	References: 1. M. Sancira – lecture slides – classroom 2. Oracle Database 12c DBA, 2015. 3. Oracle database 12c : new features, 2017.
L3.(2h) Database Storage Structures Management. User Security Administration. Data and Concurrency Management	Lecture, conversation, illustration	References: 1. M. Sancira – lecture slides – classroom 2. Oracle Database 12c DBA, 2015. 3. Oracle database 12c : new features, 2017.
L4.(2h) Midterm	Examination	References: 1. M. Sancira – lecture slides – classroom 2. Oracle Database 12c DBA, 2015. 3. Oracle database 12c : new features, 2017.
L5.(2h) Schema Objects Administration. Undo Data Management. Database Maintenance	Lecture, conversation, illustration	References: 1. M. Sancira – lecture slides – classroom 2. Oracle Database 12c DBA, 2015. 3. Oracle database 12c : new features, 2017.
L6.(2h). Performance Management.	Lecture, conversation, illustration	References: 1. M. Sancira – lecture slides – classroom 2. Oracle Database 12c DBA, 2015. 3. Oracle database 12c : new features, 2017.
L7.(2h) Backup and Recovery Concepts. Database Backup Generation. Database Recovery Generation.	Lecture, conversation, illustration	References: 1. M. Sancira – lecture slides – classroom 2. Oracle Database 12c DBA, 2015. 3. Oracle database 12c : new features, 2017.
<b>Recommended bibliography / Bibliografie</b> 1. Bob Bryla, Oracle Database 12c DBA Handbook, McGraw-Hill Education,2015 2. Bob Bryla, Oracle database 12c : new features, McGraw-Hill Education,2017		
<b>8.2. Seminar, lab / Seminar, laborator</b>	<b>Teaching/learning strategies / Metode de predare/ învățare</b>	<b>Remarks, details / Observații</b>
L1.(2h) SQL Knowledge Verification.	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	The labwork is accessible on classroom. It contains the statements problems to be solved and related program templates that should be used to solve them. The teacher provides additional hints, and answers the questions the students may have.

L2.(2h) Oracle Database Server Instalation and Configuration	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L3.(2h) PL/SQL Concepts.	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L4.(2h) PL/SQL Programming Fundamentals. SQL in PL/SQL	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L5.(2h) PL/SQL Conditional Control: IF Statements, Case Statements	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L6.(2h) PL/SQL Iterative Control	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L7.(2h) PL/SQL Error Handling. Exceptions.	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L8.(2h) PL/SQL Cursors. Triggers	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L9.(2h) PL/SQL Collections	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L10.(2h) ) PL/SQL Records	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L11.(2h) PL/SQL Procedures, Functions and Packages	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.

L12.(2h) Security and User Authorization	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L13.(2h) Recapitulation	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	Idem. The students should hand over the deliverables required by the previous labworks. The teacher will evaluate them, and may ask additional questions to evaluate the students.
L14. Final evaluation	Assisted practical labworks in SQL, using ORACLE. Learning by collaboration, dialog, and code testing.	The students should hand over the deliverables. The teacher will evaluate them, and may ask additional questions to evaluate the students.
<b>Recommended bibliography / Bibliografie</b> <ol style="list-style-type: none"> <li>1. B. Rozenzweig and E. Rakhimov. Oracle PL/SQL by Example. The prentice hall ptr oracle series.</li> <li>2. Michael McLaughlin, Oracle Database 12C. PL/SQL Programming , McGraw-Hill Education</li> </ol>		

### 9. Correlations between the content of the course and the requirements of the IT field / Coroborarea conținuturilor disciplinei cu așteptările reprezentanților comunității epistemice, asociațiilor profesionale și angajatorilor reprezentativi din domeniul aferent programului

The database approach is ubiquitous in financial, management, accounting or online applications, whether they are existing applications or are now being implemented. The local, national or European labor market is constantly looking for graduates with good knowledge of databases, especially the database administration model, respectively the PL / SQL language.

### 10. Evaluation / Evaluare\*

Activity / Tip de activitate	10.1. Evaluation criteria / Criterii de evaluare**	10.2. Evaluation methods / Metode de evaluare***	10.3. Weight in the averaged mark / Pondere din nota finală
10.4. Lecture / Curs	Theoretical and practical questions	Midterm Exam	30%
		Colloquim	30%
10.5. Seminar/ lab	Management of storage and security essential structures	Practical lab/Project	40%
10.6. Minimal knowledge for passing / Standard minim de performanță			
The minimal knowledge and abilities required to get a passing grade (which is 5) include: <ul style="list-style-type: none"> <li>- mastering the fundamental concepts of database administration, exemplified in the ORACLE system</li> </ul>			

- implementation of real life problems using PL / SQL

The final grade is calculated as a weighted average of the grades given for the components specified in 10.4 and 10.5. The exam is considered passed if the average is at least 5. At each of the exam sessions (including overdue and extension) the grade is calculated according to the same rule.

Date/ Data completării  
21.09.2020

Signature (lecture) /  
Semnătura titularului de curs  
Lect.dr. Monica Sancira

Signature (seminar)  
Semnătura titularului de seminar  
Lect.dr. Monica Sancira

Signature (director of the department)  
Semnătura directorului de departament