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|---|---|--|----------------|-------------------------|
| Discipline  | DATABASES   |  | code: 29       | winter semester         |
| Specialty   | Computer Systems and Technologies   |  |                |                         |
| ECTS credits: 7   | Form of assessment: exam  |  |                |                         |
| Lecturer  | Assoc. Prof. Geo Kunev, PhD<br>Room 409 A TB<br>Phone: +359 52 383<br>E-mail: geo.kunev@tu-varna.bg |  |                |                         |
| Department  | Software and Internet Technologies Department   |  |                |                         |
| Faculty   | Faculty of Computing and Automation   |  |                |                         |
| <p>Learning objectives:</p> <p>The course "Databases" is at the heart of information technology. It aims to familiarize future professionals with the theory and practice of databases. Discussed are the physical and logical foundations of databases. The relational data model is subject to in-depth study. The properties of relational information structures, methods for their analysis and synthesis (design) are given.</p> <p>Other approaches are also included in building databases such as Object, NoSQL, and others. Data access languages and description of conceptual schema databases are considered. Here the basic standard is the SQL standard. Learning methods for database programming such as PL/SQL are studied. The structure of information systems built on different databases is given. A link has been made between databases, information systems and information technology. The basics of complex information environments are also introduced. The course includes programming systems with databases based on PL/SQL - structure of language data types and control structures and focuses on specific databases objects such as cursors, functions, procedures, packages, triggers and more.</p> <p>Different types of application systems are used with business databases such as CRM, ERP, SCM.</p> <p>The practical part of the course includes the design and implementation of databases by current versions of DBMS (Oracle), programming PL/SQL and administration of the database through SQL Developer and / or others during laboratory exercises and by developing individual course work.</p> <p>The subject is related to the prerequisites: "Programming Fundamentals", "Object Oriented Programming", "Programming Systems"; and output connections to subjects: "Databases, Project", "Internet Programming Technologies ", "Business Intelligence Systems" and others.</p> |   |  |                |                         |
| CONTENTS:   |   |  |                |                         |
| Training Area   |   |  | Hours lectures | Hours seminar exercises |
| Data bases - models, relational model   |   |  | 6              | 6                       |
| Design of relational databases, normalization   |   |  | 6              | 6                       |
| SQL language – DDL, DML, TCL, DCL   |   |  | 6              | 6                       |

|  |           |           |
|--|-----------|-----------|
| Database programming - PL / SQL  | 6         | 6         |
| Other types of databases - (ORDB, NoSQL, OLAP) and systems (CRM, ERP, SCM) | 6         | 6         |
| TOTAL: 60 h  | <b>30</b> | <b>30</b> |