DATABASE SECURITY

Faculty of Computer Science				
Study programme:	**Computer Science**		Degree level:	**Engineer's degree full-time programme**
Specialization	**---**		Diploma path:	**2026/2027W - 2026/2027S**
Module name:	**Database Security** (Bezpieczeństwo baz danych)			
Module type:	**obligatory**	**Semester: 2**	ECTS:**5**	Module ID:**FCS-00042**
No. of hrs in semester:	Lecture (L) - **26** Classes(C) - **0** Specialization workshop (SW) - **30** Project (P) - **0** Laboratory classes (LC) - **0** Seminar (S) - **0**			
Prerequisites	-			

Aims and objectives:	To familiarize students with the methods of protection of the information contained in the databases of the mechanisms built-in and custom solutions. Learning the steps of securing and choose the appropriate method of protection.		
Forms of teching activities::	lecture, specialization workshop,	Assessment:	Evaluation must be relevant to the intended learning outcomes: Lecture - written exam Laboratory - exercise reports
Module content:	Lecture: 1. Legal Aspects of Database Security 2. Basic Definitions and Issues 3. User Authentication Methods 4. Confidentiality and Security Control in the Oracle Environment 5. Creating Roles 6. Creating Synonyms 7. Creating Views 8. Profiles 9. Basics of PL/SQL Programming 10. PL/SQL Subroutines 11. Security Related to PL/SQL Programming 12. Transparent Coding 13. Setting Access Rights at the Single Table Row Level 14. Information Systems Security Policy 15. Assessments Specialized Lab: 1. Introductory Course on Legal Aspects of Database Security 2. Installing Oracle Server 3. Creating a Sample Database 4. Creating User Accounts 5. Assigning Privileges 6. Creating and Assigning Roles 7. Creating Synonyms 8. Creating Views 9. Creating Profiles 10. PL/SQL Programming Part 1 11. PL/SQL Programming Part 2 12. PL/SQL Code Wrapping 13. Transparent Coding 14. Setting Access Permissions at the Single Table Row Level 15. Setting Access Permissions at the Single Table Row Level. Assessment		
Teaching methods:	programming, lecture problem, informative lecture,		

Learning outcomes

Symbol	Specify min. 4, max. 8 learning outcomes in the following order: knowledge – skills – competence. Each learning outcome must be verifiable	Reference to the programme learning outcomes of education
E1	knows the basic issues related to database security	INF1_W13
E2	knows the basic problems, solutions and regulations relating to the protection of data against damage and unauthorized access	INF1_W13
E3	able to analyze and test database for safety	INF1_U06
E4	can protect the database program code and data from unauthorized access using appropriate tools and techniques.	INF1_U06

No. of learning outcome	Methods of assessing the learning outcome	Type of teaching activities (if more than one) during which the outcome is assessed
E1	Written exam	L
E2	Written exam	L
E3	Project	Sw
E4	Project	Sw

Student's workload (in hours)	**1** - Attendance at lectures	26	26
	2 - Attendance at laboratories	30	30

	4 - Homeworks, reports	60	49
	7 - Preparation for exams	None	20
		TOTAL:	**125**
Quantitative indicators	Student's workload - activities that require direct teacher participation: (1)+(2)	56	**ECTS**
			2.2
	Student's workload connected with practical classes (2)+(4)	79	3.2

Basic references:	https://docs.oracle.com/database/121/DBSEG/toc.htm M. Gertz, J. Sushil, Handbook of Database Security: Applications and Trends, 2008 Z. Sencun, G. Livraga, Data and Applications Security and Privacy XXXI: 31st Annual IFIP WG 11.3 Conference, DBSec 2017, Philadelphia, PA, USA, July 19-21, 2017, Proceedings 2017 I. Samarati, R. Indrakshi, From Database to Cyber Security, 2018
Further reading	https://www.dnsstuff.com/oracle-database-security

Unit:	Department of Information Systems and Computer Networks	Lecturer/ instructor	dr inż. Eugenia Busłowska
Date of issuing the programme:	30th March 2026	Author of the programme:	dr inż. Eugenia Busłowska

L - lecture, C - classes, LC - laboratory classes, P-project, SW - specialization workshop, S - seminar