STUDY MODULE DESCRIPTION FORM

Name of the module/subject **IT in Transportation I**		Code **1010611251010610627**

Field of study **Transport**	Profile of study (general academic, practical) **(brak)**	Year /Semester **3 / 5**

Elective path/specialty **Logistics of Transport**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**

Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**

No. of hours					No. of credits **3**
Lecture: **2**	Classes: **-**	Laboratory: **1**	Project/seminars: **-**		

Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**

Education areas and fields of science and art **technical sciences**	ECTS distribution (number and %**)** **3 100%**

Responsible for subject / lecturer:

Michal Maciejewski, PhD
email: michal.maciejewski@put.poznan.pl
tel. 61 647 59 57
Faculty of Machines and Transport
3 Piotrowo street, 60-965 Poznan, Poland

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Basic knowledge about the up-to-date information techniques, computer science and mathematics
2	**Skills**	Ability to make use of the basic functionality of MS Office (especially, MS Excel)
3	**Social competencies**	Ability to make use of the computer in order to communicate with others

Assumptions and objectives of the course:

-Acquainting students with the basics of computer information systems in transport. In the first semester, students learn about the operation of the contemporary computer systems applied in transport. The second semester is devoted to theoretical and practical aspects of applying computer information systems in various areas of transport.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Knows the structure, functionality and operations of modern computer information systems in transport - [K1A_W06]

2. Knows the rules of advanced forms creation and data processing in MS Excel - [K1A_W09]

3. Knows the basics of creating functions and procedures in Visual Basic - [K1A_W10]

4. Knows the rules of design, implementation and use of databases - [K1A_W17]

5. Knows the rules of computer networks operations, incl. the internet, IP addressing, DNS services - [K1A_W18]

6. Knows the rules of designing and configuring local networks (incl. home networks) - [K1A_W21]

7. Knows the basics of the architecture and operations of the contemporary information systems - [K1A_W18]

8. Knows the basic methods of designing and notating computer algorithms - [K1A_W18]

9. Knows the basic applications of finite automate in computer systems for transport - [K1A_W18]

Skills:

1. Can create advanced formulas and process data in MS Excel - [K1A_U01]

2. Can create functions and procedures in Visual Basic - [K1A_U01]

3. Can design, build and use basic databases in MS Access - [K1A_U05]

4. Can design and configure local computer networks (incl. home networks) - [K1A_U06]

5. Can apply basic methods of computer algorithms design and notation   - [K1A_U07]

6. Can design uncomplicated finite automata for transport - [K1A_U17]

Social competencies:
1. Can make us of advanced computer systems to communicate with others - [K1A_K01]
2. Understands the need for technological development, especially in the economy - [K1A_K01]

Assessment methods of study outcomes
-Lectures: written exam
Laboratories: individual reports

Course description
-Introduction, computer information systems in transport, classification of computers, von Neunmann?s architecture, PC architecture, operating system, binary coding
MS Office package, MS Word (automation, styles, equation editor), MS PowerPoint (templates), MS Excel (functionality, modelling decision problems, Solver)
Creation of data bases in MS Excel, application of advanced formulas, pivot tables, pivot charts
Visual Basic, macroinstructions, macro recorder, macro editor, adding menu in MS Excel, safety of macros
Subroutines, variables, operators, conditional instructions, application of VBA functions
Database, database management system, transactions, architecture of DBMS, relational data model, GIS data base, good practices in designing databases
MS Access, modelling, tables, relations, forms
Modelling, queries, reports
Computer networks, IP addressing, DNS, local computer network
Network structure, IP addressing, internet access, resource sharing
Computer systems, computer system architecture, client-server architecture, peer-to-peer (p2p) architecture, layered architecture
Algorithms, notations, step notation, block diagrams (flowchart), examples
Introduction to finite automata, Mealy?s automaton, Moore?s automaton, Marcov decision processes, decision strategies

Basic bibliography:

1. Ewelina Szajba, Urszula Jarmuszkiewicz: System zarządzania bazą danych ACCESS 2.0. Wydaw. Akademii Ekonomicznej, Poznań, 1998.

2. Paul A. Longley, Michael F. Goodchild, David J. Maguire, David W. Rhind: GIS. Teoria i praktyka. Wydawnictwo Naukowe PWN, Warszawa, 2006.

3. Jacek Januszewski: Systemy satelitarne GPS, Galileo i inne. Wydawnictwo Naukowe PWN, Warszawa, 2006.

4. TransCAD ? Routing and Logistics. Caliper, 2003.

5. Transims Overview (www.transims-opensource.org).

6. Ciesielski Marek, Długosz Jan, Gołembska Elżbieta: Zarządzanie przedsiębiorstwem transportowym. Wydaw.Akademii Ekonomicznej, Poznań, 1996.

Additional bibliography:

1. 1.   Douglas E. Comer: Sieci komputerowe TCP / IP. 1, Zasady, protokoły i architektura. Wydawnictwa Naukowo-Techniczne, Warszawa, 1997.

2. 2.   Jeffrey D. Ullman, Jennifer Widom: Podstawowy wykład z systemów baz danych. Wydawnictwa Naukowo-Techniczne, Warszawa, 1999.

3. Vivek Kale: SAP R/3: przewodnik dla menadżerów. Wydaw. Helion, Gliwice, 2001.

Result of average student's workload	
Activity	**Time (working hours)**
1. Preparation for lectures	4
2. Participation in the lecture	30
3. The consolidation of the lecture	4
4. Consultation - lecture	2
5. Exam Preparation	15
6. Participation in the exam	2
7. Preparation for laboratory	2
8. Participation in laboratory exercises	15
9. Consolidation of laboratory, report	6
10. Consultation - laboratory	2

http://www.put.poznan.pl/

Student's workload		
Source of workload	**hours**	**ECTS**
Total workload	82	3
Contact hours	51	2
Practical activities	25	1