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Information Assurance and Systems Security

Syllabus CSCI-344 BOK 2.21

Quarter/Year: Spring/2024

ECTS Credits: 6

Instructor: Ruslana Selezneva, PhD

US Credits: 3

Contact information:

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Prerequisites: Mathematics for Economics, Introduction to Programming

Course Description

In this course students learn basics of information security, in both management aspect and technical aspect. Students understand of various types of security incidents and attacks, and learn methods to prevent, detect and react incidents and attacks. Students will also learn basics of application of cryptography which are one of the key technology to implement security functions.

Course Outcomes

PH2. Keep the moral, cultural, scientific value and increase the achievements of society, using different types and forms of physical activity for maintaining a healthy lifestyle.

PH3. Demonstrate knowledge of theories, methods and functions of management, modern concepts of leadership.

PH6. Identify skills of search, collection and analysis of information, calculation of indicators to justify management decisions.

PH7. Demonstrate organizational design skills.

PH8. Apply management methods to ensure the effectiveness of the organization.

PH9. Demonstrate skills of interaction, leadership, teamwork.

PH11. Demonstrate skills of situation analysis and communication in various areas of the organization.

PH14. Identify the causes of stress, adapt yourself and the members of the team to the stressful situation, finding ways to neutralize it.

Competencies

3K2. Ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology, use different types and forms of motor activities for active recreation and a healthy lifestyle.

3K5. Knowledge and understanding of the subject area and understanding of professional activity.

3K8. Skills in the use of information and communication technologies.

CK2. Ability to analyze the results of the organization, to compare them with the factors of external and internal environment.

CK5. Ability to manage the organization and its departments through the implementation of management functions.

CK13. Understanding of the principles and norms of law and use them in professional activities.

Internationality: international software, international textbooks

Communications

For individual issues, students should contact the professor ONLY by given e-mail or by Moodle. In the Subject line they should put: UACUFirstNameLastName. E-mail messages will normally be answered within 24 hours.

Note! Only emails sent from the student's corporate email address will be answered.

Student Responsibilities

Time Commitment

The study of technical courses is cumulative (i.e., an understanding of earlier material is necessary to grasp concepts covered later). Past experience has shown a high correlation between procrastination and low grades. Students must be committed to completing tasks on time.

Technical Aspects

The student is obliged to provide himself/herself with all the necessary technical equipment for the educational process (laptop or computer, webcam, headsets or headphones and microphone), as well as access to the Internet.

Only students signed-in with their own first and last name are allowed into [video](#) lectures in Zoom.

Grading Policy

The course is based on mastery of course outcomes. Student grades for this course will be calculated based on performance. Note: the minimal grade to pass a subject is 60%.

Graduate Grading Guidelines

The assignment of a letter grade for a course is an indication of the student's overall success in achieving the learning outcomes for the course. The course letter grade may be viewed as a summary statement of the student's achievement in individual assessments (assignments & activities). These assessments are intended to identify for students their strengths as well as those areas in need of improvement. Student work is assessed according to the guidelines below.

Course-level Grading guidelines:

Grade	ECTS Grade	International Grade
90% - 100%	A	5 (Excellent)
83% - 89%	B	4 (Very Good)
75% - 82%	C	4 (Good)
70% - 74%	D	3 (Good)
60% - 69%	E	3 (Acceptable)
35% - 59%	FX	Not acceptable, possible repetition of course

Criteria for grading:

ECTS grade	Requirements for the student
A	The student demonstrated a comprehensive systemic and in-depth knowledge of program material; processed basic and additional literature; obtained a solid grasp of the conceptual apparatus, methods, techniques and tools provided by the program; found creative abilities in the presentation of the educational program material both on this issue and on related modules of the course and related courses, or the student had a current control of 90-100 points
B	The student demonstrated good knowledge of program material; processed the basic literature, mastered the conceptual apparatus, methods, techniques and tools provided by the program, but with some inaccuracies
C	
D	The student showed mediocre knowledge of the core program material; learned information mainly from a lecture course or just one textbook ; mastered only certain methods, techniques and tools provided by the program
E	
FX	The student has significant gaps in knowledge of the main program material; fragmentary mastered the basic concepts, techniques and tools; significant mistakes are made when using them

Maximum total possible points – 225 points incl.

(Midterm and Final exam are 60% of overall evaluation, where Midterm – 20% and Final – 40%) · Test/ Assignment / Project – 3/3 points (several times during the course)

Midterm exam – 45 points

Final exam – 90 points

Student Workload

It is assumed that for each out of 17 class sessions a student spends about 10.5 academic hours. of work. This includes 3.5 academic hours of lectures with the instructor and 7 academic hours of personal work. Personal work includes home work assignments, tests and working on the course materials.

Please pay attention that 1 academic hour equals to 40 minutes.

Assignment Format

- All work should be shown in time. If the student misses the deadline – the task is failed.

- Midterm covered topics from previous lectures (weeks 1-6). It included multiple choice questions and cases (essays) and took about 45 min.
- The Final exam covered all course material and included multiple choice questions and cases (essays). It lasts for 1.5 hours. Admission to the Final exam is possible only if all the tasks of the curriculum are covered.
- After the Midterm and Final is graded a student has access to the grade only. Access to the attempt, corrects answers and information whether the answer is correct cannot be granted.

Academic dishonesty

Academic integrity is submitting one's own work and properly acknowledging the contributions of others. Forms of academic dishonesty include:

1. Plagiarism – submitting all or part of another's work as one's own in an academic exercise such as an examination, a computer program, or written assignment.
2. Cheating – using or attempting to use unauthorized materials on an examination or assignment, such as using unauthorized texts or notes or improperly obtaining (or attempting to obtain) copies of an examination or answers to an examination.
3. Facilitating Academic Dishonesty – helping another commit an act of dishonesty, such as substituting for an examination or completing an assignment for someone else.
4. Fabrication – altering or transmitting, without authorization, academic information or records.

Any violation of these rules constitutes academic dishonesty and is liable to result in a failing grade and disciplinary action. In case of any academic dishonesty a student is not allowed to continue or retake the assessment activity and for the Final the unsatisfactory grade (“0”) is assigned for the course total. Cases of the academic dishonesty are not considered by the Academic Council.

Midterm and Final are valid only if they are taken on-campus (room defined by the dean's office) and on UACU's computer/laptop or online on the student's computer/laptop using Zoom and other conditions defined by the dean's office to avoid the cases of academic dishonesty. Students who will not meet this requirement will be expelled from the course with grade “0”.

In case of missed Midterm or Final exam (for a valid reason like sickness or an emergency) a request to repeat the exam is possible. Permit to repeat a midterm or final exam is done through a letter to the dean's office with request and approval of subject lecturer.

Submission or retaking of any assessment activities after deadlines are forbidden.

Submission & Return Policy

Assignments must be submitted to the professor on or before the due date indicated in the Course Schedule. The assignments submitted after the due dates receive zero points.

***** NO MAKE –UP QUIZZES AND EXAMS*****

Schedule

Week #	Research Projects	Assignments Due	Points
Lecture 1	Concepts of data, information, and computer-based information systems, impact of information technology on business (business data processing, intra-organizational and inter-organizational communication by using network technology, business process, and knowledge process outsourcing)	Test/Assignment	3/3
Lecture 2	<u>Types of Information Systems</u>	Test/Assignment	3/3
Lecture 3	Transaction Processing System (TPS)	Test/Assignment	3/3
Lecture 4	Management Information System (MIS)	Test/Assignment	3/3
Lecture 5	<u>Decision Support System (DSS)</u>	Test/Assignment	3/3
Lecture 6	Knowledge Management System (KMS)	Test/Assignment	3/3
Lecture 7	Recent trends in information technology (brief ideas): enterprise computing, mobile communication, smart card, AI	Test/Assignment	3/3
	Midterm (8 th class) 30% out of total amount of points for the course	Test	36
Lecture 9	Data Base Management System for business (part 1) Concept of Data Base Management System, Important terms of Database [including Entity, Attribute, Primary Key, Foreign Key, Candidate Key, Referential integrity, Table, Views, Data Dictionary]. Types of databases [hierarchical, network, and relational]. Basic ideas of Data Warehouse and Data mining.	Test/Assignment	3/3
Lecture 10	Data Base Management System for business (part 2) Creation of Tables, Defining Primary key; Multiple Table Handling – Defining Relationship, Foreign Key; Generating simple and Conditional Queries. Types of queries [Update, Delete, Append]; Designing Forms and Reports.	Test/Assignment	3/3
Lecture 11	Introduction to Internet for business applications Meaning of Internet. Concepts of Internet Intranet and Extranet, IP Address (IPv4, IPv6), URL, Domain name System. Internet Protocols - TCP/IP, UDP, FTP, TELNET,(brief ideas only). HTML, DHTML, AND XML	Test/Assignment	3/3
Lecture 12	Data Communication: Concept of <u>Data communications</u> , Transmission Modes [Simplex, Half-Duplex, Full Duplex, Serial, Parallel, Synchronous, Asynchronous], Communication Media. Wireless and satellite communication, Wireless Broadband, WAP, Network components – Bridge, Switch, Router, Gateway. Computer Networks: Network Concept, Types: LAN, WAN, MAN, VAN, SAN.	Test/Assignment	3/3
Lecture 13	Cloud IT solutions for business	Test/Assignment	3/3
Lecture 14	Security Issues for business Security threats - Virus, Trojan, Hacking, Spam. Security Measures - Firewall, Antivirus software, Digital Signature. Concept of data Encryption & Decryption. Symmetric and asymmetric encryption. Digital Envelope	Test/Assignment	3/3
Lecture 15	Financial Accounting Package and its Implementation	Test/Assignment	3/3

Lecture 16	Artificial Intelligence (AI) for business	Test/Assignment	3/3
	Final (17 th class) 40% out of total amount of points for the course	Test	54

Recommended

Materials

1. Alter, S (2013). [Work System Theory: Overview of Core Concepts, Extensions, and Challenges for the Future](#). *Journal of the Association for Information Systems*. 14 (2): 72–121. [doi:10.17705/1jais.00323](#).
2. Alter, S. (2003) 18 Reasons Why IT-Reliant Work Systems Should Replace 'The IT Artifact' as the Core Subject Matter of the IS Field, *Communications of the Association for Information Systems*, 12(23), Oct., pp. 365–394, <http://aisel.aisnet.org/cais/vol12/iss1/23/>
3. Alter, S. (2006) *The Work System Method: Connecting People, Processes, and IT for Business Results*. Works System Press, CA
4. Bacon, C. James; Fitzgerald, Brian (2001-04-01). [A systemic framework for the field of information systems](#). *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*. 32 (2): 46–67. [doi:10.1145/506732.506738](#). [ISSN 0095-0033](#). [S2CID 15687595](#).
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6. Bulgacs, Simon (2013). [The first phase of creating a standardised international innovative technological implementation framework/Software application](#). *International Journal of Business and Systems Research*. 7 (3): 250. [doi:10.1504/IJBSR.2013.055312](#). Retrieved 2015-11-02.
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12. [Information Systems](#). *Principia Cybernetica Web*.
13. [Information Technology vs Information Systems: What's The Difference?](#). *CityU of Seattle*. 2020-01-16. Retrieved 2021-11-13.
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15. Kroenke, D M. (2008). *Experiencing MIS*. Prentice-Hall, Upper Saddle River, NJ
16. Kroenke, D. M. (2015). *MIS Essentials*. Pearson Education
17. Laudon, K.C. and Laudon, J.P. *Management Information Systems*, Macmillan, 1988.
18. Marc S. Silver, M. Lynne Markus, [Cynthia Mathis Beath](#) (Sep 1995). [The Information Technology Interactive Model: A Foundation for the MBA Core Course](#). *MIS Quarterly*: 361–390.
19. Neumann, Gustaf; Sobernig, Stefan; Aram, Michael (February 2014). *Evolutionary Business Information Systems*. *Business and Information Systems Engineering*. 6 (1): 33–36. [doi:10.1007/s12599-013-0305-1](#). [S2CID 15979292](#).

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21. O'Brien, J A. (2003). Introduction to information systems: essentials for the e-business enterprise. McGraw-Hill, Boston, MA
22. Piccoli, Gabriele; Pigni, Federico (July 2018). [Information systems for managers: with cases](#) (4.0 ed.). Prospect Press. p. 28. ISBN [978-1-943153-50-3](#). Retrieved 25 November 2018.
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* The above schedule and procedures are subject to change in the event of extenuating circumstances.

Протокол засідання кафедр № 1 від 24.01.2024 року

Проректор з навчально-методичної роботи



Л.І.Кондратенко

Завідувач кафедри



Л.В.Жарова

Викладач



Р.В.Селєзньова