

COURSE SYLLABUS

Computer Information Systems

Course code: CIS 161/5 and CIS161/6

Semester and year: Fall 2026

Day and time: Thursday, 8:00-10:45 (CIS5) or Friday, 11:15-14:00 (CIS6)

Instructor: Ing. Alex Moucha, PhD.

Instructor contact: alex@moucha.org

Consultation hours: Before or after class by appointment

Credits US/ECTS	3/6	Level	Bachelor
Length	15 weeks	Pre-requisite	None
Contact hours	42 hours	Grading	Letter grade

1. Course Description

The course introduces students to the practical use of computer information systems in everyday academic, professional, and personal contexts. Emphasis is placed on how digital tools and basic information systems support organization, research, communication, and decision-making across disciplines. The course explores topics such as digital productivity, data interpretation, responsible internet behavior, online safety, and AI-assisted learning. Students engage in hands-on activities, discussions, and group work using real tools and case-based examples. No prior technical knowledge is required, making the course accessible to students from all study backgrounds.

2. Student Learning Outcomes

Upon completion of this course, students should be able to:

- Describe the core components of contemporary information systems – including basic hardware, software, cloud services, and networks – and explain how they support everyday academic tasks.
- Select and apply appropriate digital productivity and collaboration tools to organize work, manage study projects, and work effectively in teams.
- Collect, format, and analyze small datasets in spreadsheet software, and interpret resulting tables, charts, or dashboards to inform simple decisions.
- Formulate clear prompts and ethically employ generative AI tools to enhance learning, research, and writing, while documenting AI contributions and limitations.
- Identify common cybersecurity threats, implement basic protective measures, and manage personal digital identity and online footprint responsibly.
- Plan, create, and deliver a concise, visually supported presentation – individually or in a small group – using online slide or white-board platforms to communicate structured ideas to an academic audience.

General Education Learning Outcomes

This is a general education course. Your general education core curriculum enables you to learn and practice the basics about the use of information systems that will become the foundation for learning and achieving success in your academic major.

3. Reading Material

Required Materials

- All materials can be accessed via NEO
 - Overview of Information Systems (Rainer & Prince, 2023) *Cybersecurity Essentials*, 2nd Edition by Charles J. Brooks, Christopher Grow, Philip Craig, & Donald Short (Wiley, 2022)
 - Articles or additional materials provided in class and/or on NEO

Recommended Materials

- Recommendations will be provided during the semester via NEO as the aim is to cover the latest innovations on the Information technology world.

4. Teaching methodology

As previously mentioned in the introduction, the students have maximal flexibility in choosing their preferred timeslot (within the limit of seats in the classroom for the students who attend physically) and device to work with (for as long as it permits the assignments to be solved).

Attendance is mandatory (excepting of course well motivated cases) and will be recorded, however it carries no points in the final grade. All the points are allocated towards the assignments, meaning that the grade is composed by work alone. Passive attendance is not encouraged by not being rewarded. The grade is thus not influenced by a student missing a class, however cumulated absence will result in administrative problems for the student, accordingly to the school rules and regulations.

The assignments need to be **BOTH** submitted to the NEO platform as well as being presented to the instructor in person to be graded. A simple submission to NEO will NOT be graded, the instructor must see and discuss with the student the assignment for that assignment to carry a positive grade.

The final grade for any assignment will be given only after the student had the possibility of submitting revisions. The final grade will be based on the final revision submitted by the student. Thus, the student receives intermediate feedback and has the possibility to improve the quality and quantity of the work, and this will be taken into consideration when computing the final grade for that assignment.

To summarize: for as long as a student delivers quantity and quality in his/her assignments, passing the subject is a simple formality. The subject is oriented towards building experience rather than memorizing terms. The students are encouraged to participate and have their questions answered by the instructor and a flipped class fully supports this interaction between students and the instructor in solving the assignments.

The final grade is composed by approximately 10 assignments distributed throughout the semester:

- 3-4 assignments based on theory of computers, AI, word processing and how to write a paper (a)
- 1-2 assignments on data security (b)
- 1 assignment based on presentation delivery (c)
- 2-3 assignments based on spreadsheets (d)

- (a) The students will receive a case scenario which is based on the theoretical foundation regarding computers and will write a paper. The case scenario will be appropriate to the current level of problems which arise in companies today (business relevant). The final version of the paper will be considered a mid-term project. The students will have multiple iterations, each improving and expanding the borders of the written text. The final grade of the final version of the paper will overwrite all the previously obtained grades for the previous versions, thus it will achieve the same strength as a proper mid-term project.
- (b) Securing data on the computer and in transit through networks is paramount. The students will have to apply data encryption accordingly to requirements for data security.
- (c) Based on the written paper (a) the students will write a presentation (slides) to be presented within a 15 minute time limit.
- (d) Being able to do basic computations in spreadsheets is equally important. Thus, there will be multiple assignments with incremental complexity.
- (e) Understand the advantages, disadvantages and modus operandi for AI.

5. Optional Assignments

During the semester, together with the standard security assignments, 2 optional assignments are launched. Both are difficult and the vast responsibility for their implementation is of the student. One of the assignments involves proper usage of standard PGP encryption and digital signature and the other involves proper encryption and digital signature using SMIME.

Learning outcomes: understanding modern public-key cryptography (PKI) and digital signature involved in any business transaction or website (the moment when you see the lock and https in the URL of a webpage).

Grading: not doing these assignments is FREE OF PENALTY, being OPTIONAL. However, if done properly, each of the 2 assignments carries double the number of points as for any other normal assignment (because each has two subtasks: encryption and signature). These points may be used to cover missing assignments, acting as a safety net. Of course, students are encouraged to do these assignments even if they are not in need of a safety net, as they increase the level of knowledge and awareness regarding modern-day encryption techniques.

6. Course Schedule

Date	Class Agenda
Session 1 3/9/2026 or 4/9/2026	Topic: Course introduction and academic expectations; Introduction to Computers; Introductory discussion with topic "AI" Description: We will walk through the syllabus and introduce the topics of this course along with the academic expectations for both, students and professor. We will have a presentation about the information systems concepts and an open discussion about the use of AI Assignments/deadlines: Verification of the login credentials and ability to upload assignments on NEO

	Due before class meeting: Syllabus review, follow the given recorded materials
Session 2 10/9/2026 or 11/9/2026	Topic 1: Computer Components, Business Suites, Operating Systems Topic 2: Operating Systems, Business Suites Description: what is a computer, major parts of a computer, how computers operate; memory architecture, volatile and nonvolatile memory, how computers store data, how computers process data, structure of an operating system, different business suites, their advantages and disadvantages, in the end psychology dictates preference Reading: the recorded lecture and demos Assignments/deadlines: the theoretical content will be assessed in the Midterm Project, for the practical part there is an in-class activity (essay)
Session 3 17/9/2026 or 18/9/2026	Topic 1: How to Write a Document Topic 2: Virtualization and its importance in businesses, Cloud Computing Description: general guidelines to properly write documents which can be read and understood by others, without space for interpretation or misunderstanding and how work can be easily referenced, advantages and disadvantages of virtualization and cloud computing Topic 3: Quantum computing fundamentals and quantum cryptography fundamentals Reading: the recorded lecture and demos Assignments/deadlines: in-class activity, essay
Session 4 24/9/2026 or 25/9/2026	Topic 1: Basic Word Processing Topics Topic 2: Advanced Word Processing Topics (using automatization when writing) Description: creating documents, margin setup and page setup, inserting images, wrapping text, file formats, Lorem Ipsum - in case you need random text, building a document, automatic table of contents, margins, inserting images and placement (floating), archives containing files, assignment and upload process, using automated tools to help you format your work: styles, templates Reading: the recorded lecture and demos Assignments/deadlines: in-class activity, essay
Session 5 1/10/2026 or 2/10/2026	Topic 1: Introducing AI: Using Smart Tools to Get Help with Tasks Topic 2: Mid-Term Project Description: We will introduce the basics of AI tools and show how they can be used to support different types of tasks. Focus will be on how to ask clear and useful questions or prompts. We'll test some examples directly in class and compare how the answers change based on how the prompt is written. Examples with CoPilot, ChatGPT and Apple Intelligence (maybe Google Gemini if someone has Android). Mid Term Project covering word document writing and the theoretical content of the first 4 lectures. Assignments/deadlines: The project itself
Session 6 8/10/2026 or 9/10/2026	Topic: Staying Safe Online and Managing Your Digital Identity Description: We will talk about what it means to stay safe online—from avoiding scams, phishing, and weak passwords to understanding what happens to the data we leave behind. The session will cover concepts like digital footprints, personalization, cookies, and data trails—what they are, how they work, and how they shape our online identity. We will also discuss practical ways to manage your digital behavior and protect your privacy.

	Reading: Chapters 1 & 2 from <i>Cybersecurity Essentials</i> (Brooks, Grow, Craig & Short, 2nd Edition, Wiley, 2022) – “What is Cybersecurity?” and “Cyber Threat Landscape” and Selected excerpts from <i>Digital Literacy Unpacked</i> (Reedy & Parker, 2018), Ch. 5: “Managing digital identity” (PDF will be provided) Assignments/deadlines: Come prepared with one example of a scam, fraud, or security breach you’ve heard of or experienced Applications: Topic 1: Basics of Security: Securing Your Data in Transit (VPN and Dark Web) Topic 2: Basics of Security: Securing Your Data on the Computer Description: encryption of data in the internet, theory of public key cryptography and digital signatures Reading: Pre-recorded demo lecture Assignments/deadlines: Data encryption using VPN and Tor. Data encryption using WinZip, WinRAR, Disk Utility. The activities have to be carried out on personal devices as the computers in the lab do not have the required software and are limited in their networking activities.
Session 7 15/10/2026 or 16/10/2026	Topic 1: Finalizing the Midterm Project Topic 2: In class demo of file encryption on local computers and in transit Description: in-class practice. Being the deadline for the Midterm Project there is no theoretical content delivered during this class. Reading: Pre-recorded demo lecture Assignments/deadlines: local and in transit encryption of data
Session 8 22/10/2026 or 23/10/2026	Topic: How to create slides and carry presentations Description: in class presentation of your paper delivered as part of the Midterm Project Assignments/deadlines: in-class presentation
29,30 /10/2026	Midterm Break
Session 9 5/11/2026 or 6/11/2026	Topic 1: Finalizing the in-class presentations Topic 2: Spreadsheets – Basic Operations Description: Assignments/deadlines: how spreadsheets work, how and where to use them. Spreadsheets are NOT databases. What the differences and similarities between them are. Reading: Pre-recorded demo lecture
Session 10 12/11/2026 or 13/11/2026	Topic: Spreadsheets – Advanced References and Graphs Description: playing with the data in the sheet and between sheets of the same file Reading: Pre-recorded demo lecture Assignments/deadlines: in-class activity, Excel practice
Session 11 19/11/2026 or 20/11/2026	(17/11/2025 is Public Holiday) Topic: Spreadsheets – Advanced References and Graphs - Continuation Description: playing with the data in the sheet and between sheets of the same file Reading: Pre-recorded demo lecture Assignments/deadlines: in-class activity, Excel practice
Session 12 26/11/2026 or 27/11/2026	Topic: Spreadsheets – Exporting and Importing Data, Objects and Graphs Description: exporting graphs to word processor or presentation application, how should graphs look for printing, importing data to the spreadsheet Reading: Pre-recorded demo lecture

	Assignments/deadlines: in-class activity, importing and exporting data
Session 13 3/12/2026 or 4/12/2026	Topic: Spreadsheets – Exporting and Importing Data, Objects and Graphs - Continuation Description: exporting graphs to word processor or presentation application, how should graphs look for printing, importing data to the spreadsheet Reading: Pre-recorded demo lecture Assignments/deadlines: in-class activity, importing and exporting data
Session 14 10/12/2026 11/12/2026	Reserve – most probably delivery of assignments for encryption and Excel

7. Course Requirements and Assessment (with estimated workloads)

Assignment	Workload (hours)	Weight in Final Grade	Evaluated Course Specific Learning Outcomes
Class Participation	40	0%	The active participation is proven in each class by the work submission. There are no points for "passive attendance".
Mid-Term Project	50	40%	The student is able to write a paper presenting a given topic in a consistent way and to deliver a presentation based on the written paper and topic, in a concise and precise way. The topic is related to either computer structure (hardware and software) or data security and vulnerabilities.
Spreadsheets	30	27%	The student is able to work with spreadsheets and use them to make in-depth analysis and business decisions. – Excel If there is no need for a Final Project, its points will be equally distributed to the in class assignments.
Security	20	20%	Assignments on securing data on the local computers and in the Internet
Presentation	10	10%	Presenting a topic which was documented in a paper which the student wrote.
Feedback Form	0	3%	Filling in the Feedback Form for the subject
TOTAL	150	100%	

Assignment Breakdown:

Mid-Term Project covering assignments 1 – 5:

Assessed area	Percentage
Page size	2
Page orientation	2
Margins top and bottom	2
Margins left and right	2
Header name	2

Header affiliation	2
Footer date	2
Footer page number	2
Footer total number of pages	2
Title style	2
Subtitle style	2
Subtitle name, affiliation and email	2
Abstract	2
Abstract style normal	2
Keywords	2
Keywords style normal	2
Chapters titles heading 1	2
Subchapter titles heading 2	2
Text normal style	2
Custom title style	2
Custom subtitle style	2
Custom heading 1 style	2
Custom heading 2 style	2
Custom normal style	2
Conclusions	2
References	2
References automatic	2
Table of contents	2
Table of contents automatic	2
Fig 1 captioned	2
Fig 1 explained	2
Fig 1 related to the text	2
Fig 2 captioned	2
Fig 2 explained	2
Fig 2 related to the text	2
Text quality	15
Explanations quality	15

Presentation – assignment 6:

Assessed area	Percentage
Appropriate nr of slides	7.5
Slides layout and ergonomics	7.5
Appropriate ideas	7.5
Appropriate nr of ideas	7.5
Slide numbering	7.5
Slide total numbering	7.5
Thank you slide	7.5
Contact details on the slide	7.5
Presentation quality	20
Ideas quality	20

Security mandatory assignment 1 – assignment 7:

Assessed area	Percentage
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Correct encryption and decryption	100 (done or not done)
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Security mandatory assignment 2 – assignment 8:

Assessed area	Percentage
Correct encrypted file or text sending using the dark web and the Tor systems	100 (done or not done)

Security optional assignment 1 – assignment 9:

Assessed area	Percentage
Correct PGP email encryption and decryption	50 (all or none ; done or not done)
Correct PGP email digitally signed	50 (all or none ; done or not done)

Security optional assignment 2 – assignment 10:

Assessed area	Percentage
Correct SMIME email encryption and decryption	50 (all or none ; done or not done)
Correct SMIME email digitally signed	50 (all or none ; done or not done)

Excel Final-Project – assignments 11-13:

Assessed area	Percentage
Work with ranges	3
Work with operators	3
Work with functions	3
Work with references	3
Work with static references	3
Work with multiple sheets	3
Work with references from sheet to sheet	3
Work with formulas	3
Work with imbricated formulas	3
Divide et impera	20
Insertion of graphs based on the correct data	3
Graph alteration	3
Line styles	3
Legend	3
Scroll lock	3
Find and appropriate solution to a problem	20
Import and export data	3
Import and export large volumes of data	3
Building complex functions to display human-readable outputs	3
Specific data selection for processing	3
Results based on partial data ranges	3

Data aggregation	3
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8. General Requirements and School Policies

General requirements

All coursework is governed by AAU's academic rules. Students are expected to be familiar with the academic rules in the Academic Codex and Student Handbook and to maintain the highest standards of honesty and academic integrity in their work. Please see the AAU intranet for a summary of key policies regarding coursework.

Course specific requirements

There are no special requirements or deviations from AAU policies for this course.