

Digital Reform University

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Introduction

The internet and the new digital technologies brought globally the most important socio-cultural transformation during the last few decades. Universities, as all other educational institutions, are among the most affected by this transformation. In the context of the study of what makes us all reform universities, we would like to collect data on all existing efforts on institutional level to provide skills and competencies to face the challenges of digitalization of life. The aim of this report is to provide a systematic account of the courses and training on digital skills, available for the academic personnel, students and administrative staff.

New Bulgarian University

General Education Courses

All students at NBU need to get credits for General computer skills courses and training. Such skills include working with the Windows operating system, working with Word, Excel and PowerPoint applications of MS Office; basic knowledge and basic practical skills for working with Internet search software, e-mail, working in local networks, etc. The digital skills are provided by the following courses: OOOK500 Computer Skills for PC (and OOOK500E – the same course entirely online version and OOOK501 in English language); OOOK504 Computer Skills for MAC and the upgrade courses OOOK505 Advanced Computer Skills for PC.

All general education courses in computer skills are one-semester, 3 credits and can be enrolled in either the autumn or spring semester.

90-95% of the students enrol in the courses. The certificates that are accredited in NBU are:

- ECDL START
- ECDL CORE
- CAMBRIDGE IT SKILL STANDARD
- CAMBRIDGE IT SKILL PROFICIENCY

- MICROSOFT OFFICE SPECIALIST

OOK500 Computer Skills for PC (OOK500E and OOK501)

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
NBU		Assoc. Prof. Polina Mikhova, Ph.D (pmihova@nbu.bg), Assoc. Prof. Boyan Zhekov, Ph.D (boyan.jekov@gmail.com), Assoc. Prof. Svetla Maneva, Ph.D (smaneva@nbu.bg), ch. assistant Professor Stella Atanasova, Ph.D (satanasova@nbu.bg), Levena Petrova (levena@abv.bg), Todorka Georgieva (tgeorgieva@nbu.bg), Hristo Pavlov (hpavlov@nbu.bg), Marieta Harizanova (marietaganeva@abv.bg), Sasha Spasova (svs@iinf.bas.bg), Nikolina Iskarova (niskarova@nbu.bg), Monka Kotseva (mkoceva@students.nbu.bg), Nedyalka Monova (n_monova@abv.bg), Lubomir Krastanov (krastanov@nbu.bg)	BA	IT	Spring Semester or Fall Semester, (1 st Semester or 2 nd Semester in every Bachelor program)	Bulgarian	3 ECTS

Description

To familiarise students with the requirements and nature of the general education exam for working with PCs on a local area network, searching for information on the Internet and using e-mail, and working with Windows and MS Office (Word, Excel and PowerPoint) on PCs. Credits are awarded after successfully completing two placement tests during the semester, forming a passing grade, or

after successfully completing a general education comprehensive exam in computer skills. The OOOK500E Computer Skills (e-learning) course offers e-lecture training, structured entirely in electronic form, in the form of video tutorials and practical tasks. Students enrolled in this course must attend the NBU only during current controls or consultation hours. The OOOK501 is the same course, taught in English, for our foreign students or for the programmes in English.

Students who have passing grades on both tests during the semester are exempt from the exam with a passing grade (arithmetic average of the grades on the two check tests). Students who have a poor grade or who have not taken either of the two control exams during the semester must, and students who are not satisfied with their current control grade, are allowed to take the comprehensive practical examination at the first session after the semester during which they were enrolled in the course.

Learning Targets

Successful students

- **Know:** Basic principles for the organisation of computer systems and the principles of computer information processing.
- **Can:** use a computer, have practical skills ...
 - for working with the Windows operating system (working with folders and files on a local network),
 - for the use of e-mail and Internet search software, and
 - for working with Word, Excel and PowerPoint applications of MS Office (editing and formatting a document, using formulas and functions, compiling diagrams, transferring information to slides).

Requirements

Students should have knowledge and skills to work with a personal computer from the school course in information technology.

Topics covered in the course:

1. Windows (10 or the newest version) operating system: Windows screen - Desktop, icons, buttons, Jump List, windows and menus, mouse operation, window operation, start menu and Taskbar, Notification area, Aero Peek button, file system, files and folders, applications, gadgets. Control Panel - regional and language settings; Explorer: file types, create new folder, rename; Local and global networks: use of common resources in a local network, some basic concepts in local and global networks; look at <http://text500.nbu.bg> and www.nbu.bg: e-student, electronic enrolment, virtual training - Moodle NBU, library; Email: Web-based mail - send, receive, reply, attach files, forward mails; Word 2019 screen, menus, Ribbon rubber, Tabs, context menus, toolbars. Screen adjustment: View, Ruler, Zoom; Measuring units. Basic editing in Word (keyboard work; non-printable characters; rules for writing text; inserting and deleting characters), saving (Save and Save As) name, type and location; open file.

2. Stages in word processing: typing, saving, opening, correcting, editing, formatting, printing.

Marking and editing (deleting, moving, copying and pasting text fragments: words, sentences, paragraphs, etc.). Quick text editing. Work with files, work with several screens.

Explorer: select items in a list, delete, move and copy files and folders. Backup and unzip folders and files; Page Layout. Topics. Page setup. Insert page numbering, permanent titles. Insert auto date. The concept of field.

3. Formatting, the concept of "default"; style formats: for sign, for paragraph; Character formatting; Download formats.

4. Paragraph formatting. Automatic numbering - leading text, Bullets - character selection, structural numbering (on several levels). Frames and background.

5. Working with tables: construction, content - marking and editing. Convert. Merger and division. Sorting. Formatting - styles for tables. Formatting text in cells: vertical alignment, rotation.

6. Multi-column text; Add footnotes, Search and Replace; Work with graphic images, Clip Art, drawing, positioning.

7. Exercise - preparation for Test examination 1.

8. Test examination 1

9. WWW: How is the Web organised and works? browsers and work with them, hyperlinks, homepages and sites, addresses, Web servers and clients. Searching for information on the Internet: basic search tools, search engines and directories and working with them, saving the information found - graphic, text, web page address.

E-mail: Postal programs - setup, send, receive, reply, attach files, forward. (MS Outlook, or Windows Live Mail, or similar)

10. Work with spreadsheets - Excel. Features of input and editing. Cell formatting. Printable area. Permanent titles. Formulas and functions.

11. Graphic representation of data - charts. Exchange of information between different MS Office applications

12. Presentation of information via PowerPoint. Create a new presentation: Select a template, slide types, slide sequence, PowerPoint views. Create a presentation with ready-made elements from Word and Excel documents or other presentations. Editing and formatting.

13. Exercise - preparation for Test examination 2.

14. Test examination 2

15. Exercise - a sample complex test

Suggested reading

- Supporting materials in Moodle-NBU
- From the Step by Step series
 - Microsoft Office System 2007/2010
 - Microsoft Word 2007/2010
 - Microsoft Excel 2007/2010
 - Microsoft PowerPoint 2007/2010
- From the series "In easy steps"
 - Microsoft Office System 2007/2010
 - Word 2007/2010
 - Excel 2007/2010
 - PowerPoint 2007/2010
- Computer tutorial, Michael Miller, SoftPress, 2010

BOOK 504 MAC Computer Skills

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
NBU		ch. Assistant Professor Stella Atanasova, Ph.D. (satanasova@nbu.bg)	BA	IT	Spring Semester or Fall Semester, (1 st Semester or 2 nd Semester in every Bachelor program)	Bulgarian	3 ECTS

Description

Designed for students who have successfully passed an entrance test in information technology. The course covers tools for working in MacOS environment - creating text documents, spreadsheets and multimedia presentations with iWork, searching for specialized information on the Internet, as well as creating creative multimedia products such as movies, web pages, audio podcasts, etc.

Assessment tools

Students take 2 tests during the semester and develop course work on a topic set by the teacher (or proposed by the student and approved by the teacher).

Those who have at least an average (3.00) on both tests are exempt from the exam.

The final grade for the semester is: $50\% * \text{Test1} + 35\% * \text{Test2} + 15\% * \text{Course work}$.

Those who do not submit a term paper receive the maximum grade Very good (5.00).

Teaching Setup / Learning Methods

- Introduction to the course. A brief history of APPLE. Product range of the company. Key differences between MacOS and Windows. E-student systems. E-mail of the NBU.
- MacOS: settings in System preferences. Settings: network, regional and language. Utilities applications and utilities. iPhoto - Organize photos: process, share and publish photos. Features of the windows, the desktop and the Dock section; work with the file manager Finder, Spotlight, DashBoard, Expose.
- Working with the iWork package - similarities, differences and connection with MS Office. Keynote skills and Power Point connection.
- Working with Keynote - editing and layout of a presentation.
- Working with Pages - editing and formatting a document.
- Working with Pages - editing and formatting work templates. Connection with MS Word.
- Skills in working with Numbers (using formulas and functions, drawing diagrams) and connection with Excel.
- Working with Numbers. Exchange information between different iWork applications. Exercise - preparation for Test 1.
- TEST 1
- Keynote coursework - basic requirements for text and colours on a slide. Insert sounds and videos. Animation effects. Create a slideshow.
- Discussion and presentation of term papers. Basic rules for presenting, rehearsing, recording, conducting and publishing.
- GarageBand - basics in sound processing. Working with loops in the program. Create a music video.
- iMovie - work with video, video processing, visual effects, text captions, transitions and sound effects. Create a video clip.
- Development of a course project
- TEST 2

Learning Targets

Successful students

- **Know:** the basic principles of organization of computer systems and the principles of computer information processing.
- **Can:** use a computer in MacOS environment, which is proven by ...
 - Comprehensive IT test to test skills for working with MacOS (working with folders and files on a local network), for using e-mail and Internet search software, and for working with Pages, Numbers and Keynote applications iWork (editing and formatting a document, using formulas and functions, charting, transferring information to slides).
 - Advanced IT test, which tests skills in working with MacOS applications for creating and processing video and audio information (processing photos and images, creating amateur videos with visual effects and transitions from individual digital video and audio materials, creating multimedia-rich presentations and amateur websites).

- Independent study on tools provided by Apple to create multimedia DVDs for Home Cinema System with movies and / or photos with relevant menus and audio visual effects, or recording and processing audio materials and means of publishing in the form of podcasts, or to create on personal Internet pages.

Requirements

Students must have knowledge and / or skills to work with a personal computer in information technology, proven after successfully passing an entrance test.

Suggested reading

- Learning materials in Moodle
- Information from the Internet
- Literature in the field of MacOS X, iLife and iWork.

Topics covered in the course

1. Introduction to the course. A brief history of APPLE. Product range of the company. Key differences between MacOS and Windows. E-student systems. E-mail of the NBU.
2. MacOS X v.10.9.1 Mavericks: settings in System preferences. Settings: network, regional and language. Applications and utilities. iPhoto - Organize photos: process, share and publish photos. Features of the windows, the desktops and the Dock section; work with the file manager Finder, Spotlight, DashBoard, Expose.
3. Working with iWork - similarities, differences and connection with MS Office. Keynote skills and connection with Power Point.
4. Working with Keynote - editing and layout of a presentation.
5. Working with Pages - editing and formatting a document.
6. Working with Pages - editing and formatting work templates. Connection with MS Word.
7. Skills in working with Numbers (using formulas and functions, drawing diagrams) and connection with Excel.
8. Working with Numbers. Exchange information between different iWork applications. Exercise - preparation for Test 1.
9. First ongoing control.
10. Keynote coursework - basic requirements for text and colours on a slide. Insert sounds and videos. Animation effects. Create a slide show.

11. Discussion and presentation of term papers. Basic rules for presenting, rehearsing, recording, conducting and publishing.
12. GarageBand - basics in sound processing. Working with loops in the program. Create a music video.
13. iMovie - work with video, video processing, visual effects, text captions, transitions and sound effects. Create a video clip.
14. Second current control.
15. Correction of current control

Specialised Courses

Courses for Arts and Social Skills

The aim of the general courses in arts and social skills is to develop the personal creative and social potential.

The courses' length is 30-hours, one-semester. Courses in the fields of fine arts, music, dance, theatre, film, social and computer skills are offered. Three among 40 such courses are about computer skills: OOKY138 Digital arts with tablet; OOKY147 Digital experiments with tablet; OOKY122 Fast computer typing.

Enrolment scheme - one course per semester in the first academic year in professional fields that are different from the direction of the enrolled program.

Arts and social skills courses are interchangeable with sports courses.

OOKY138 Digital Arts with Tablet

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
NBU		Ch.assistant Hristina Dyakova, Ph.D. (hristina.dqkova@abv.bg),	BA	IT, Design	Spring Semester or Fall Semester, (1 st Semester or 2 nd)	Bulgarian	0 ECTS, 30 hours of practical skills

		Krassimir Ivanov (k.ivanov@nbu.bg)			Semester in the 1 st year at NBU)		
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Description

- Students Draw with a tablet
- The course provides opportunities to enrich knowledge and skills and increase the professional training of students in the field of visual arts through a variety of art practices. Others may be involved depending on the desire and skill of the students.
- Prepares for the creation of multimedia visual art products, painting, drawing, advertising, bookplate, animation models, street art projects with all aspects of the artistic image - graphic design of visual materials, photography, print, sketch, prepress, etc.
- Provides knowledge of anatomical drawing, artistic perspective, history of culture, technology of fine art and painting, presentation of professional anatomical works, plastic arts, etc., through the provided programs
- Introduces innovative trends and practices in the field of modern graphic design and animation. The learning process traces contemporary art practices, their influence in the creation of visual arts, the production of ready-made, competitive art products with a practical or only presentational focus.
- Competences in combining and presenting visual communication skills with interactive communication skills for interaction with the user
- Analyses works of world names in design, comprehends graphic design and animation as a modern form of visual communication in society, gives examples of analysis of the world art scene.
- Works through discussions, provides lecture and visual material.
- Develops the creative thinking of the student by applying various techniques and programs.
- Considers the connection with new technologies as a mandatory tool for the production of visual products
- Builds an attitude towards the processes in art today
- Develops independent creative thinking based on what is learned in the course
- Assists in compiling and enriching a portfolio for continuing education at higher levels or for presenting works to various host institutions for future work or competitions.

Learning Targets

Successful students

- **Know how to**
 - Use the tablet as drawing options.
 - Try, painting, drawing, sketch and cartoon in your future work, using the indicated methods.
 - Use Graphic software to create and process images.

Requirements



Universität
Konstanz



It is recommended that students have knowledge and / or skills:

- With initial computer literacy
- To be motivated, as students and future artists

Suggested reading

- Help Adobe Photoshop
- Help Corel Painter
- Help Autodesk mudbox

OOKY147 Digital Experiments with Tablet

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
NBU		Krassimir Ivanov (k.ivanov@nbu.bg)	BA	IT, Design	Spring Semester or Fall Semester, (1 st Semester or 2 nd Semester in the 1 st year at NBU)	Bulgarian	0 ECTS, 30 hours of practical skills

Description

- The course provides opportunities to enrich knowledge and skills and increase professional training of students in the field of visual arts through a variety of art practices.
- Prepares for the creation of multimedia visual art products, painting, drawing, painting, advertising, bookplate, animation models, street art projects, all aspects of the artistic image - graphic design of visual materials, photography, print, sketch, prepress, etc.
- Provides knowledge of anatomical drawing, artistic perspective, history of culture, technology of painting and painting, presentation of professional anatomical works, plastic arts, etc., through the provided programs
- Introduces innovative trends and practices in the field of modern graphic design and animation. The learning process traces contemporary art practices, their influence in the creation of visual arts, the production of ready-made, competitive art products with a practical or only presentational focus.

- Competences in combining and presenting visual communication skills with interactive communication skills for interaction with the user
- Considers the connection with new technologies as a mandatory tool for the production of visual products
- Builds an attitude towards the processes in art today
- Develops independent creative thinking based on what is learned in the course
- Assists in compiling and enriching a portfolio for continuing education at higher levels or for presenting works to various host institutions for future work or competitions.

Learning Targets

Successful students

- **Know:**
 - To create visual / exquisite expressiveness.
 - To use a professional approach, painting, drawing, sketch and cartoon in their future work, through the indicated methods.
 - To create, through various techniques and materials, computer-generated, applicable art products.
 - To create new modern market-oriented works through the classical principles in the field.
 - For the latest creative practices in contemporary visual arts and graphic design.
 - Theory of contemporary visual / graphic arts and technologies
 - The pictorial vision in the contemporary art space
 - To create a ready and competitive author's art product
 - World achievements in the field, analyse them and use them thematically
- **May:**
 - use the programs Photoshop, Corel Painter, the animation software Tween Maker, in order to create a multimedia visual art product, painting, drawing, painting, advertising, etc.
 - apply the acquired knowledge and skills in the course in the implementation of their multimedia projects, including all aspects of artistic image - drawing, painting, graphic design of visual materials, photography, print, drawing, painting, sketch, prepress, etc.
 - acquire competencies in the field of general use of graphic design and its application in a number of artistic and professional disciplines
 - based on a specific study to create a finished author's product
 - offer their works as part of a portfolio applying for the next level of education, for work before committees or in a market environment abroad
 - use the created works as an integral part of design development, CD for printing and other professional presentations

Requirements

It is recommended that students have knowledge and / or skills:



Universität
Konstanz



- With initial computer literacy
- To be motivated, as students and future artists

Suggested reading

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OOKY122 Fast Computer Typing

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS

NBU		Assoc. Prof. Maria Stambolieva, Ph.D. (mstambolieva@nbu.bg)	BA	IT	Spring Semester or Fall Semester, (1 st Semester or 2 nd Semester in the 1 st year at NBU)	Bulgarian	0 ECTS, 30 hours of practical skills
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Description

The course offers the development of skills for effective - fast, literate and ergonomic ten-finger typing with the standard Bulgarian keyboard layout. It is divided into three parts:

- Part 1. Ten-finger typing with a keyboard.
- Part 2. Effective introduction of information and language literacy.
- Part 3. Increasing the speed of entering information with the help of concordors and AutoText.

The course offers a self-teacher and dictations for self-preparation.

Learning Targets

Successful students

- Can write efficiently, ten fingers, with a keyboard;
- Write competently, without spelling mistakes;
- They know how to draw up documents;
- Can extract high-frequency vocabulary and collocations;
- Master the principles of effective reduction;
- Can enter abbreviations using AutoText.

Requirements

There are no prerequisites.

Suggested reading

- Angel Zhelezarov. Typing teacher. Ed. "Technique", Sofia, 1991.
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- One hundred years of standard Bulgarian keyboard. Anniversary collection. Publishing House of the National Assembly of the Republic of Bulgaria, 1997

Other Specific Digital Skills Courses

BUTB406D Digitalization in Tourism

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
NBU	Distance learning; e-learning, lecture	Ch.assistant Hristo Chukurliiev, Ph.D. (hchukurliiev@nbu.bg), Ch.assistant Margarita Misheva, Ph.D. (mmisheva@nbu.bg)	BA	Business Administration and Management	Spring Semester in the 2 nd year at NBU, for the students, studying Tourism management (distance learning)	Bulgarian	3 ECTS

Description

The course Digitalization in Tourism presents the transformation that is happening at all levels with the tourism industry with the development of digital technologies and the Internet. The knowledge acquired in it builds a broad basis for what is digital and digital technologies, how they work and how they replace the processes of the analogue era. All topics and questions in the course are refracted through the prism of the tourism industry.

Teaching Setup / Learning Methods

- Components of the tourism business. Identifying the forms of travel, accommodation, food and entertainment before and after the digital revolution. The experience as a component of the tourist product. Digitization of these five elements.
- Travel agencies.
- Reservation systems.
- Management systems. Synchronization. Fidelio / Opera.

- Discussion on the transformation of the tourism business after digitalization and after the advent of the Internet. The tourism business after 2000, after Covid19 and tourism after 2022.
- Economy 4.0 and tourism. Circular economy and tourism. The role of digital technologies in it.
- Ongoing evaluation.
- Marketing and advertising in tourism.
- Marketing and advertising in tourism - continued.
- The guide and the curious tourist.
- The guide and the curious tourist - student presentations.
- Bitcoin tourism. Blockchain travel, hotel and restaurant. Futurism in tourism.

Learning Targets

Competences

Students will know what digital technologies are, in what areas and how they are applied in the tourism business.

They will be able to apply knowledge of technology in specific situations by choosing an appropriate solution based on knowledge of digital technologies.

Requirements

The preliminary expectation is that the students who enrol in this course will be curious and ready to make an effort on an equal footing with the teacher in understanding and learning. Acquiring knowledge is an active process.

Suggested reading

- The Fourth Industrial Revolution, Klaus Schwab, Hermes Publishing House, 2016
- Direct and digital marketing of common sense, Drayton Bird, Locus - Sofia, 2012
- Информационни технологии в практиката или какво (не)знаем за тях, Венцислав Джамбазов, НБУ, 2018 г. / Information technologies in practice or what we (don't) know about them, Ventsislav Dzhambazov, NBU, 2018
- Електронен бизнес, Любен Краев, Виолета Краева, Петя Емилова, Издателство Фабер, Велико Търново, 2012 г. / E-business, Lyuben Kraev, Violeta Kraeva, Petya Emilova, Faber Publishing House, Veliko Tarnovo, 2012
- <https://www.bbc.com/storyworks/travel/the-new-tourism-trend/technology-redefine-tourism-industry>
- Дигитализацията и ефектът от ковид19 в сферата на управлението, маркетинга, модата, финансите, комуникациите и туризма (през погледа на студентите), Чукурлиев, Христо, <http://eprints.nbu.bg/4514/> / Digitalization and the effect of kovid19 in the field of management, marketing, fashion, finance, communications and tourism (through the eyes of students), Chukurliev, Hristo, <http://eprints.nbu.bg/4514/>
- Дигиталните дрехи на блокчейн технологиите, Чукурлиев, Христо}, <http://eprints.nbu.bg/cgi/users/home?scr/> Digital clothes of blockchain technologies, Chukurliev, Hristo}, http://eprints.nbu.bg/cgi/users/home?scr

BCRM321D Digital Business Management

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
NBU	Distance learning; e-learning, lecture	Ch.assistant Hristo Chukurliiev, Ph.D. (hchukurliiev@nbu.bg)	MA	Business Administration and Management	Fall Semester (the 3 rd semester) in the 2 nd year at NBU, for the master students, in MA Business Communications programme (distance learning)	Bulgarian	3 ECTS,

Description

The Digital Business Management course presents students with an interdisciplinary problem - that of digital management. Most of the issues and problems in the thematic plan of the course are known from the practice of each of us, but are not present in our minds as a system in which they are interconnected and dependent on each other. Digital business management is associated with the use and creation of software (ICT), management theory and practice (Business Administration), means, styles and models of communication (Mass communications), types of intelligence - emotional, social, mechanical / instrumental (Cognitive psychology). The course prepares students for the practical application and use of digital tools and management channels by giving them an advantage in which of the two roles to fall on a client / contractor or manager / offering a service or product.

Assessment tools

Task 1: The student chooses a brand / product or seeks help from the teacher for such and analyses the marketing strategy that is applied to the student in a format of your choice - text or presentation and up to 10 pages / 15 slides

Task 2: Based on a real brand / product that is not sufficiently developed or imaginary, the student creates their own marketing strategy.

During the current assessment, students work on Task 1, present it, then on Task 2, present it.

On the day of the final exam, if you do not have an ongoing assessment, you will receive from the teacher a specific assignment on both tasks - analysis and strategy development.

Learning Targets

Successful students

- **Know:**
 - What is digital management, what are its components and how do they work?
 - What are the means of communication in the digital environment with their strengths and weaknesses?
 - What are the main management models of the organization and how they have developed over the years?
 - What are the types of activities in an enterprise / organization and the most common software related to them?
- **May:**
 - Anticipate and manage risks in a digital environment
 - Delegate and receive tasks and information through digital means
 - Find and use activity type software
 - Do a task to create software
 - Adapt when changing the environment to the management / implementation of tasks - digital or real, national or international, institutional or extra-institutional

Requirements

- Basic knowledge in the field of administration and management
- Work with operating system, software
- Desire to experiment and test their knowledge, skills and abilities in a non-traditional way

Suggested reading

- STANCHEVA, Anastasia. Fundamentals of Management, Steno Publishing House, Varna 2006
- TAYLOR, FREDERICK. Scientific Management, Sofia: Profizdat, 1989
- HADJIEV, Christian. Theory of Organization, NBU Publishing House, Sofia 2011
- GOLMAN, Daniel. Emotional Intelligence, East-West Publishing House, Sofia 2011

CSTB723 Sound Processing

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS

NBU		Ch.assistant Stella Atanassova, Ph.D. (satanasova@nbu.bg)	BA	IT	Fall Semester in the 4 th year at NBU, for the students, studying Multimedia and computer graphics	Bulgarian	3 ECTS
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Description

The aim of the course is to get acquainted with the basics of analogue and digital sound and the means for its recording, editing, encoding (compression) and storage. Students get acquainted with the basics of digital sound and modern algorithms for compression (coding). Practical skills for editing and compression of sound are acquired.

Software used during the course

Autodesk 3D Studio MAX 2013

Assessment tools

Test

Learning Targets

Successful students

- **Know:** Basic concepts and parameters of digital sound. Modern algorithms and standards for sound compression with and without losses. The file formats used for audio storage. The organization of multimedia systems for surround sound. The principles of applying 3D sound in virtual reality systems.
- **Can:**
 - Record, edit and store sound intended for use in multimedia and virtual reality systems.
 - Select and adjust the appropriate compression codec depending on the specific application.

Requirements

- Knowledge of the characteristics and parameters of analogue sound (high school course)
- Basic knowledge of the hardware implementation of the sound controller in PC

Suggested reading

- Watkinson, J. An Introduction to Digital Audio, Focal Press, 2002, ISBN 0-240-51643-5
- Waggoner, B. Compression for great video and audio, 2010, ISBN 978-0-240-81213-7
- Salomon, D. Data Compression, Springer, 2007, ISBN 1-84628-602-6
- Durand R. Begault ,3-D Sound for Virtual Reality and Multimedia, NASA/TM—2000–000000

CINB762 Computer Editing (Adobe premiere) Part I.

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
NBU		Victoriya Radoslavova (vicky.radoslavova@gmail.com)	BA	IT, Cinema and TV	Fall Semester in the 4 th year at NBU, for the students, studying Cinema and TV programme , module: Editing	Bulgarian	3 ECTS

Description

The course aims to:

- introduce students to the basic concepts related to Adobe Premiere
- acquaint them with the basic ways of video and audio editing
- introduce them to the basic video and sound effects
- introduce them to basic video and audio filters
- teach them to work - audio and video products with Adobe Premiere

Software used during the course:

Adobe Premiere Pro CS6

Assessment tools

- Tests 10%

- Student participation and activity during classes 50%
- Individual assignments - 40%

Learning Targets

Successful students

- **Know:**
 - The main activities - installation of video and audio product with the Adobe Premiere program
 - To master the basic parameters of the program
- **May:**
 - To install audio visual products with the Adobe Premiere program
 - To process video and audio signals

Requirements

Students should have computer literacy

Suggested reading

- Adobe Premiere - official course - Softpress
- Video editing with a computer - Softpress

Other Courses Offered

All students of NBU are free to choose whatever course they want from the other programs as an established practice of individual plans. Specific courses of digital skills and training can be added to any major. Small sample of among 90 such courses are:

1. [SCTM127 Cloud Computing and information systems](#)
2. [CASB832 Website design](#)
3. [VACB500 Theory and practice of graphic design \(Part I and II\)](#)
4. [CASM346 UX design for WEB and mobile apps](#)
5. [DSCM014 Data visualization](#)
6. [CSTB613 Video games development](#)

Training for students, provided by the NBU library

The university library provides on a regular basis a large number of non-obligatory training for NBU students of all levels (BA, MA, PhD) for helping their research and creation of successful diploma works. Most of these courses are listed on the page of the library:



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<https://library-blog.nbu.bg/?cat=66>

Academic Staff Development

The HR office at NBU provides a variety of training for the administrative staff. Some of these courses are obligatory as far as they concern the operational software, designed for the administration of the university, others provide general skills and are voluntary. There are three main categories:

- Training with the NBU administrative platforms (S1 for the administration of student's enrolments and credits; Eventis – for a paperless document turnover; Locus – for the organisation of students and professors' interaction, etc.)
- Training with the MS Office (Excel in particular)
- Training with meeting platforms (Zoom, Microsoft Teams, etc.)

Best practices in digital skills courses and training to be shared with the ERUA partners

The "Teacher's café" is a community network for exchange of know-how and best practices among the teaching staff, as well as a platform for keeping pace with the innovations in Moodle and other online teaching software.

Introducing digital training courses in the category of General Courses for Arts and Social Skills, and especially the success of OOKY138 Digital arts with tablets among the students of all BA programs at NBU.

Teacher's Cafe

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
NBU	online in Moodle		Lecturers of NBU	IT	During the whole academic year, 1,5 hours; several times a year	Bulgarian	-

Description

"Teacher's Cafe" is the main platform for keeping the Academic personnel of NBU updated with the new teaching skills and technological innovations expected by the students. It is almost entirely dedicated to the transfer of skills in the digital sphere, especially the main teaching platform of the university – Moodle. The main topics are: Course design for Moodle; Creating a test module in

Moodle; Creating surveys in Moodle; Creating different types of questionnaires and a question bank in Moodle; Creating a space for writing and applying PlagScan control; Digital technologies and teaching today; Hybrid teaching; Effective teaching in digital environment, etc.

The meetings are twice a month, non-obligatory, and the training is provided both by the specialists from The School of Distance, Digital and Continuing Education and other professors sharing their experience. "Teacher's Cafe" is a vivid and followed by many forms of socialization at NBU, considered as very useful by all participants. It is a continuation of an extended series of efforts since the early 2000s of the Career Development Center and similar structures to make all the academic personnel of NBU capable of using IT technology for teaching. During the pandemic such skills in the teaching staff turned out to be the major competitive advantage of NBU and gave a tangible advantage compared to all other universities in Bulgaria.

<https://e-edu.nbu.bg/course/view.php?id=33210&lang=en>

"Teacher's café" is one of the main platforms for Academic Staff Development in the digital sphere, suggested and organized by the Career Development Center at NBU, after the Covid crisis.

Academic Personnel Training Offered by the **Library**

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
NBU	Online or in person training sessions	The Library staff	Oriented towards BA, MA and PHD students as well as professors	Information competences, IT	Depending on the session - around 1,5 hours	Bulgarian	

Description

The library at NBU has dedicated place and qualified personnel to provide a wide variety of training for teachers and students to support their academic research. Most of the training for the academics are about taking advantage of the internet for more possibilities, more visibility and impact. Some of the themes are:

- Opening and managing profiles in Web of science, Google scholar, etc.
- Online citation research
- Researching digital databases
- Open science, repositories and research data management
- Open educational resources

For more information, you can follow the report about [academic staff development offers](#).

Open Laboratories

Some specific courses from the [Apple Lab](#) (this is an open laboratory):

- [CSTB723 Sound processing](#)
- [CINB762 Computer editing \(Adobe premiere\) Part I.](#)

For more information about Apple Lab and all open labs among the Alliance, you can follow the [open laboratories document](#)

Roskilde University

General Information

At Roskilde University there are no requirements of computer skills, when applying and/or entering the university, but it is expected that the student has basic computer skills (can navigate in a web browser, e-mail, MS Office etc.). There is not offered any basic computer skill courses at the university directly.

When entering the university, and if relevant for the subjects/institute that are chosen, more specific computer skill courses are offered. They are either obligatory or elective courses. And are either held in Danish or English and range between 2.5 or 5 ECTS points.

Most of the digital skill courses are offered within the institute of human-technology, the bachelor basic courses are to create a baseline for the students, and because the bachelor and master subjects Computer Science and Informatics are held within the human-technology institute. It is not a requirement to have the basic programming courses to enter the Computer Science bachelor (ex. a human science student can enter the bachelor subject Computer Science, without any pre computer skill courses).

There are some elective courses on both bachelor and master level, where students can build a stronger computer skill profile, these elective courses are not necessarily offered to all students at Roskilde University, but only students from specific institutes.

Some of the courses have requirements of earlier courses of basic computer skills (ex. 'Optional Basic Course 4-8: Functional Programming and Language Implementations', where it is expected that the student has a basic level of computer skills).

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General Education Courses

Basis course 4: Design and Construction II – WORKSHOP 07: From Digital Design to Physical Product - With Machines and Programmes From Fablab

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	2 weeks in person workshop, with 5 classes per week	Nicolas Padfield (nicolasp@ruc.dk), Schack Lindemann (schackl@ruc.dk)	BA	Humanities-Technological bachelor	One semester: 70 hours allocated for preparation, workshop participation, exercises, showtime and possibly excursions	Danish	2.5 ECTS

Description

Digital production - learn Computer Aided Design for 3D printing, laser cutting and CNC milling. Learn to design in 3D for modern digital production machines - 3D printing, laser cutting and CNC (computer controlled) milling. This workshop will ensure that you can design objects ready to print / cut on digital manufacturing machines.

Learning Targets

- Draw in 3D in the Fusion 360 application
- Draw in 2D in Inkscape
- Draw / program in 3D algorithmically in <https://openjscad.org>
- Plan a job on CNC milling machine with tool compensation, cutting depths and speeds
- Render, test moving systems and calculate strength in Fusion 360
- Online introduction to the machines, so the students hopefully will get ready to get started when it is again possible due to Corona

As a starting point, there will be an opportunity to draw one's own good ideas

Basis course 4: Design and Construction II – Workshop 05: Sketchup Pro & Layout - Design of Thermal Envelope

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	2 weeks in person workshop, with 5 classes per week	Tim Elkær (time@ruc.dk)	BA	Humanities-Technological bachelor	One semester: 70 hours allocated for preparation, workshop participation, exercises, showtime and possibly excursions	Danish	2.5 ECTS

Description

Group work of 3/4 person groups with static geo- / climate data and outline of a simple spatial design of a (temporary) climate screen / pavilion for use in a self-selected metropolis somewhere in the world. Think shelter / shelter from precipitation, sun / shade, temperature and wind.

Design must be modelled in the 3D program SketchUp PRO (free evaluation version) and presented as a complete digital PDF presentation incl. research and climate data.

The 3D model may also be inserted into Google Earth or combined with Google Maps so that it is seen in the context of the selected urban space.

Students will be introduced to several essential design tools, methods and techniques for research, 3D design & presentation. Making a physical scale model can be included, as well as an introduction to Photoshop, if there is interest and opportunity for this.

Learning Targets

- Knowledge of theories, methods, concepts within the dimension Design and Construction
- Ability to implement and evaluate design processes, including prioritising resource and time consumption, as well as deliver design solutions within a limited time frame
- Ability to identify and work with issues within the dimension Design and Construction

Basis course 4: Design and Construction II – WORKSHOP 04: From Noob to Master Programmer in 10 Days

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	2 weeks in person workshop (classes 5 days a week)	Christian Liljedal (chrli@ruc.dk), Keith Lim (keithl@ruc.dk)	BA	Humanities-Technological bachelor	One semester: 70 hours allocated for preparation, workshop participation, exercises, showtime and possibly excursions	English	2.5 ECTS

Description

Learn how to make a video game in JavaScript using p5js. Covers basic and advanced concepts in programming, guiding students from variables, scopes, control structures (if and for loops), coordinate logic and then blast them through into Object Oriented Programming. All in the JavaScript based p5js environment.

Week 1: Learning programming concepts Week 2: Program own game

Learning Targets

- Knowledge of theories, methods, concepts within the dimension Design and Construction
- Ability to implement and evaluate design processes, including prioritising resource and time consumption, as well as deliver design solutions within a limited time frame
- Ability to identify and work with issues within the dimension Design and Construction

Optional Basic Course 4-8: Functional Programming and Language Implementations

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS

RUC	Lectures in class, exercises and homework. Between 2-3 classes per week for 7 weeks.	Martin Niss (maniss@ruc.dk) and Morten Rhiger (mir@ruc.dk)	BA	Natural Science Bachelor	One semester: 135 hours allocated for preparation, workshop participation, exercises, showtime and possibly excursions	English	5 ECTS
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Description

This course introduces students to two topics within the area of programming languages, namely (1) functional programming and (2) compilers, interpreters, and other programming-language implementations.

The course covers (under topic 1) functional programming techniques, lists, trees, and other datatypes, higher-order functions, pattern matching, types and polymorphism, and recursion; and (under topic 2) the basic principles of programming-language implementation, abstract syntax trees, interpretation, lower-level languages, abstract machines, type checking, and compilation. As a synergy, the course demonstrates the effectiveness of using functional languages to implement compilers and interpreters for (other) programming languages. In effect, the course teaches fundamental programming-language concepts both from the perspective of language use and from the perspective of language design and implementation.

It is expected that the student has experience at a level corresponding to having completed Essential Computing 1 (EC1), Scientific Computing, or an equivalent course.

Learning Targets

- knowledge about fundamental programming-language concepts, including expressions, statements, variables, values, types, environments, stores, and functions and closures
- knowledge about the functional programming paradigm, including polymorphism, higher-order functions, and recursion
- knowledge about the principles behind interpreters and compilers, their structure, and the techniques typically used to implement them

skills needed to design and implement functional programs

- skills needed to implement interpreters and compilers for simple programming languages
- competencies to use functional programming languages and techniques in simple applications
- competencies to design and implement new programming languages

Elective Course: Personal Media and Public Connections in a Digital Era

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC		Chris Peters (cpeters@ruc.dk)	BA	General education (elective course)	10 lectures	English	5 ECTS

Description

The rise of personal media technologies in recent decades has shifted the way we understand communication processes and the flow of information in societies. Whereas earlier distinctions between mass and interpersonal forms of communication seemed quite logical, the rise of networked, locative, mobile devices and their incorporation in our everyday lives challenges this dichotomy. From mobile phones, to laptops, tablets, smartphones and so on, previous conceptual distinctions between public/private, mass/personal, producer/consumer, and professional/amateur are eroding and becoming harder to distinguish. Similarly, emailing, messaging, sharing, and posting are just a few of the emerging communicative forms that transform the potential ways people connect and engage both with each other and society at large.

This course examines how personal media devices change the ways people form public connections with fellow citizens, democratic institutions, and political actors. It considers how they can help to foster a general orientation towards what lies beyond individuals' private worlds in terms of larger public frameworks, be they political (i.e. citizens in a democracy, members of a political party), civic (e.g. neighbours in a community, participants in an online group, volunteers with a charity), or sociocultural (e.g. people of a particular demographic, speakers of a certain language, members of a club, people sharing the same lifestyle interests). These discussions are grounded in a focused class research project that investigates a particular example of this in action (for instance: uses of smartphones in crisis situations, experiences of online support communities, locative media and urban lifestyle apps). When possible, the class project will link to a larger funded research project (i.e. something funded by the EU, the Independent Research Fund of Denmark, private funding agencies) so that students get a sense of how professional research is conducted 'in the real world', providing them with valuable transferable skills for the job market.

The module is a mix of lectures (with discussion) and group work. Lectures introduce students to the theoretical frameworks and key concepts to analyse personal media use and public connection while workgroups provide the tools to conduct a research project on the experiences associated with this. Specific training will be given on various methods used in audience studies and accompanying analytic strategies, including digital and qualitative methods.

Learning targets

- Knowledge and understanding of selected research questions within the dimension the course is anchored in.
- Proficiency in analysing, comparing and assessing selected research questions within the dimension the course is anchored in.
- Competences in working independently with selected research questions within the dimension the course is anchored in.

Elective Course: Data Science and Visualization

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	Lectures, exercises and mini project	Hua Lu (luhua@ruc.dk), Martin Niss (maniss@ruc.dk)	BA	Natural Science bachelor	One semester	English	5 ECTS

Description

This course aims at introducing the fundamental knowledge (incl. concepts, steps and elements) and computing techniques of the broad field of Data Science and Visualization. The course is offered to meet the increasing needs from RUC students who encounter and process many different kinds of data in their daily work.

The course will cover what data science is about, data science process and data types, machine learning models, and data mining techniques. The course will also cover data visualization in the context of data science.

As Data Science is very hands-on by nature, the course will cover Python programming as well. It will be introduced at the beginning of the course, and involved continuously during the course.

In addition, the course will have a group-based mini-project for which the students are encouraged to find and solve real data-driven questions from their own scientific domain.

Learning Targets

Knowledge of data science as a subject, data science process and data types, and how they are relevant to one's own subject(s) and research

Knowledge of typical machine learning and data mining techniques, e.g., supervised and unsupervised learning, associate rule mining, classification and clustering

- Knowledge of techniques of data visualization
- Skills to be able to carry out the complete process of data science to support one's own research

- The competence to be able to use or create computer programs for data science tasks in one's own subject(s) and research

Elective Course: Sustainable Digitalization

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	In person lectures and exercises	Nina Boulus-Rødje (ninabr@ruc.dk)	MA	Computer science	One semester	English	5 ECTS

Description

The pace of technological development and digital innovation is increasing rapidly, as technology is becoming more pervasive and ubiquitous, playing an increasingly larger role in our society. Phrases, such as, the Fourth Industrial Revolution, the Digital Revolution, or Industry 4.0, are all used to highlight the crucial role that technology is playing in our society. While this digitalization wave has brought about new promising opportunities, it has also posed several challenges. One of the challenges concerns steering the digitalization wave towards a more sustainable direction. Some scholars have criticised the rapid obsolescence cycle of digital products, calling for the need to rethink our practices and industries. To support this move toward sustainable digitalization, the UN has developed 17 Sustainable Development Goals (SDGs), outlining, among others, various ways in which digital technologies can be used to change human practices to more sustainable consumption, waste and use of energy and resources.

This course will begin by introducing students to the impact of digitalization on different industries, discussing promises and challenges that digitalization has brought about to organisations. This will lay the foundation for engaging in a critical inquiry into finding ways in which digital technologies could support a more sustainable future for society. The students will be introduced to key debates about 'sustainable digitalization', taking currently place across different fields (i.e. Human-Computer Interaction, Computer-Supported Cooperative Work, Participatory Design, Design Science and Information Systems), and discuss the implication of these different theoretical approaches in practice.

After the course, the students will have the skills and competence to reflect over the different aspects and dimensions relevant to the design, development, and use of sustainable technologies. Some of the key aspects that will be covered, include, sustainable projects, sustainable fieldwork, sustainable users and uses, sustainable cities and communities, sustainable platforms and eco-systems, and design principles to ensure sustainable digitalizations. By discussing these topics, the course will address issues related to both local and global dimensions. Throughout the lectures, a wide variety of recent research projects and cases will be used in order to reflect upon key issues encountered within the field.

Learning Targets

Knowledge

- Knowledge and understanding of a specific Informatics subject area.
- A comprehensive overview and understanding of the general principles behind the subject area's theory, methods and technological solutions.

Skills

- Selecting and applying appropriate methods and techniques from the subject area.

Competencies

- Being able to work with IT issues, both independently and in teams.
- Being able to critically and systematically learn new approaches to the subject area and thereby independently take responsibility for one's own professional development.

Specialised Courses

Subject Module Course 3: Interactive Digital Systems (datalogi)

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	Lectures in person and exercises	Mads Hobyne (hobyne@ruc.dk)	BA	Computer science	10 lectures/workshops	English	5 ECTS

Description

The course covers programming concepts for interactive systems, that is, systems that interact with users and environments.

The course has a hands-on focus and presents the students with various methods related to programming and interaction. Students will develop and test software and hardware in multiple frameworks (Python, Arduino/Esp32, P5JS). Each lecture will introduce different ways of creating interactive elements like physical computing, networking and machine learning.

The specific design is created by the students and may, e.g. include a drone that uses Machine Learning-based image recognition.

Technical concepts and situations where interactive digital systems can be used. More specifically:

- Programming concepts for interactive systems (for example, incidents and listeners).
- Program development focusing on the processing of inputs (for example, sensors, videos and sounds) and the creation of outputs (for example, actuators and graphical user interfaces).
- Building of hardware and software (for example, different types of hardware components and features for high level programming languages versus low level programming languages).

The course will go into detail with a specific interactive digital technology. This could be, for example, robotics, interactive installations, integrated systems, and video and sound production.

Learning targets

Knowledge and understanding

- Knowledge and understanding of technical concepts and situations where interactive digital systems can be used.
- Understanding of the principles and application of the technologies behind digital systems.

Skills

- Proficiency in programming techniques used in the development of interactive digital systems.
- Proficiency in using tools and equipment to run programs.

Competences

- Competence to design and test solutions.
- Competences in being able to gain an overview of and reflect upon various solution models.

Trends in Digital Media and Communication Theory (Master in Communication)

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS

RUC	A mix between in person lectures and discussions, with group work, homework and peer feedback	Chris Peters (cpeters@ruc.dk)	MA	Communication	12 lectures/discussions/presentations	English	10 ECTS
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Description

Media technologies are at the heart of contemporary digital societies around the globe, inseparable from how people communicate and navigate their daily lives. We use them to participate on social media, take photos, check email, track fitness regimes, navigate public transit, get directions, scan restaurant recommendations and many other everyday activities, all while on the go. Digital media also allows us to work remotely. Obtain medical advice and prescriptions. Find potential romantic partners. Communicate with daycares and schools. Apply for government services. Vote. Protest. And on and on. It is clear that the creation of sustainable, innovative, and robust societies demands a profound understanding of how people use and experience media technologies in a number of critical environments. This elective course on Trends in Digital Media and Communication Theory accordingly embraces a human-centered perspective on technology to teach students how to investigate the complex relationships between digital media, communication, and society. From social media platforms to messaging apps, search engines to big data, self-tracking devices to machine-learning algorithms and facial recognition software, the future of democratic societies is inextricably interwoven with the everyday uses and experiences of media technologies, which shape both public policies and individual attitudes.

Debates about the disruptive influence of media are often paradoxical and the list of seemingly contradictory perspectives on how they influence citizens and societies go on and on. By learning about the central contemporary theoretical currents around digital media, students will be in a more informed position to engage in refined debates about the role of media in society and its rapid - and often, controversial - developments.

Alongside these theoretical discussions, students will be taught a number of key academic skills which they work on in class, which are then compiled in a portfolio at the end. With an eye to transferrable skills that can be deployed in later thesis and project work, the portfolio elements revolve around: 1. Learning how to find, assemble, and synthesise pertinent academic literature informing a research topic into a coherent literature review; 2. Identifying and summarising key policy initiatives and public debates around digital media systems, platforms, and use, in order to inform and enrich your ability to argue for the importance and timeliness of a given project topic/problem statement; and 3. Learning how to make creative 'design fictions' and associated prototypes in relation to a future use for media, in order to sharpen your critical thinking and reflection about the sociopolitical and cultural impacts of media technologies.

Learning targets

Knowledge and understanding of a specific subject area in the field of communication, information and media, including having knowledge and understanding of the common practices in relation to the subject area.

Knowledge and understanding of current theories relevant to the subject area, including knowledge of essential communications concepts and terms

- Knowledge and understanding of current methods used to study the subject area
- Skills in being able to apply relevant theory to a specific communications-related research questions
- Skills in being able to use appropriate methods to study communications-related research questions
- Skills in being able to translate analyses and knowledge and understanding to a practical communications-related context
- Competences in independently being able to take responsibility for one's own professional development and specialisation within the subject area

IKH PhD Course: Digital Human Methods

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	interactive, dialogic lines in a series of workshops and discussion sessions	Susana Tosca (stosca@ruc.dk), Anders Koed Madsen (not from RUC), Karin Wenz (not from RUC)	PhD	Digital humanities	Three days	English	5 ECTS

Description

The title of this course is inspired by the "Digital Humanities" concept, but the alternative name is a conscious disturbance to flag that we are not interested in fully automated (so-called objective) methods, but in how to incorporate the messiness and nuance of digitally mediated human lives into research from a qualitative perspective. In other words, this is not a big data course for humanists, but rather a course to critically approach the investigation of the meanings and relations that lie behind digital technologies and their use. It could be of interest to students working within the humanities and the social sciences whose projects deal (exclusively or partly) with digital cultures, digital aesthetics, digital texts, digital ethnographies or even science and technology studies.

The digital is thus understood in a broad sense. Digital Humanities has never been a unified field "but an array of convergent practices that explore a universe in which: a) print is no longer the exclusive or the normative medium in which knowledge is produced and/or disseminated; instead, print finds itself absorbed into new, multimedia configurations; and b) digital tools, techniques, and media have altered the production and dissemination of knowledge in the arts, human and social sciences." (Digital Humanities Manifesto 2.0). The Digital Human Methods course combines this

textual/semiotic perspective with a more experiential approach of investigating how humans interact digitally with the machines or with one another across platforms and different modes of mediation.

Digital human methods will often deal with digital platforms, either as an object of study, as a tool, or as a vehicle for expression and dissemination. The approach is typically multidisciplinary, incorporating semantic, aesthetic, qualitative and quantitative perspectives in ways that span across old field divisions. Scholars working with digital human methods are often engaged in very diverse practices such as work with databases, visualisations, text analysis, digital publishing, mapping or digital ethnographies involving people in different contexts and situations.

The course will address the specificities of humanistic/qualitative research that is totally or partially digital. No matter how different the individual projects, scholars will often face some of the same challenges:

- Working from a critical and theoretical tradition very often implies questioning assumptions and even the very technologies that are the object of study.
- Field sites are more often than not dispersed, multi-platformed and difficult to grasp. Digital ethnography requires specially tailored research design.
- Technologies and their affordances are constantly changing, making research experimental and more iterative than other kinds of humanistic/social science investigations.
- The actors of digital interactions (human and non-human) influence each other in unexpected ways that have to be taken into account.
- Digital collection of data can produce massive amounts of materials that have to be selected and interpreted in meaningful ways: what to do with all that data, and how?
- Digital humanities projects often require researchers to collaborate with experts from other fields, and participate in diverse teams with diverging agendas.

Learning Targets

The main aim of the course is to support the participants PhD projects by addressing some of the challenges described above both as regards to the initial stages of research design as well as data collection/generation, analysis or even writing and dissemination processes. Prior to the course, students will respond to a brief questionnaire about their own projects which the course teachers will use to fine-tune the content of the workshops so that it is adapted to the emerging topics and themes they are struggling with in their research. The course aims to offer the participant students a solid foundation of the theoretical and methodological discussions relevant to this area. To that end and as part of preparation for the course, students will have to get acquainted with a body of academic literature. A reading list of research articles/chapters will be available 3 months before course start and will be divided into a compulsory section (9 texts) which the course teachers will assume everybody is familiar with, and a complementary list that each student can administer according to their own needs and areas of interest.

Academic Development Courses

Using the Basic Features of Moodle



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University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	Workshop	Nynne Bruun Pedersen (nynnep@ruc.dk), Signe Berri (berri@ruc.dk)	Employees new to teaching assignments		Two hours	English (can be held in Danish, if wished)	0.5 ECTS

Description

This workshop will guide participants to the most important features with a focus on collaborative elements and will support them in designing or redesigning their own Moodle courses.

Learning Targets

- Use the basic features available to educators in Moodle
- Make qualified decisions about the use of Moodle in their own praxis.
- Use Moodle in planning, implementing and evaluating their courses.

Research Data Management and the FAIR Principles in Open Science

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	Workshop	Sacha Zurcher (sazu@kb.dk), Signe Berri (berri@ruc.dk)	Researchers (postdocs, assistant professors, lectors and professors) and PhD Students		Three hours	English (can be held in Danish, if wished)	0.5 ECTS

Description

Open Science and the FAIR principles are increasingly being regarded as part of good research practices. The FAIR principles aim to make your research data Findable, Accessible, Interoperable and Reusable. This course will explain what it requires to achieve good research data management, it will introduce the main concepts of Open Science and what it entails to implement the FAIR principles in a research project. Participants will discuss the possible benefits and barriers in sharing research data and gain knowledge of what FAIR can mean in their research project.

Learning Targets

- Assess the challenges in managing research data
- Be able to make a Data Management Plan (DMP)
- Place the FAIR principles within the broader Open Science agenda
- Understand how to implement the FAIR principles to make research data more visible

Qualitative Data Analysis With NVivo

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	Workshop	Søren Davidsen (sdav@kb.dk), Signe Berri (berri@ruc.dk)	Researchers and PhD students		4 hours	English (can be held in Danish, if wished)	0.5 ECTS

Description

Qualitative data such as interview transcripts, surveys, video, footage, literature, etc., are suitable for analysis in NVivo.

The purpose of this course is to teach the participants how to prepare data for analysis by means of NVivo. This is followed by an introduction to some key analysis features in NVivo

Learning Targets

- code (automated and manually)
- create cases and classification

- make a node matrix
- make a crosstab analysis
- make a framework matrix
- work with different types of data

Introduction to Data Science in R

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	Course	Jens Ulrik Hansen (jensuh@ruc.dk), Signe Berri (berri@ruc.dk)	All researchers		Four hours	English (can be held in Danish, if wished)	

Description

This course is an introduction to the statistical programming language R and how it can be used for data analysis and data science. Basic knowledge of data analysis or data science (types of data, probability distributions, linear regression or statistical tests, for instance) is assumed, but no prior familiarity with R or programming is assumed.

The aim is to take you through an entire data science process and give you the very basic for doing your own data analysis in R, involving importing data into R, data cleaning, data transformation, exploratory data analysis, plotting and visualisations, statistical tests and modelling with statistical or machine learning models. Along the way, we will talk about some minimal programming knowledge that can help you better understand R.

Learning Targets

- Obtain basic knowledge programming in R involving importing data into R, data cleaning, data transformation, exploratory data analysis, plotting and visualisations, statistical tests and modelling with statistical or machine learning models.

Introduction to Data Science In Python

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	Course	Maja Hanne Kirkeby (majaht@ruc.dk), Signe Berri (berri@ruc.dk)	All researchers		Six hours	English (can be held in Danish, if wished)	

Description

This course will be an introduction to Data Science in Python, and how it can be used for data analysis and data science. The aim of the course is to give you a hands-on tour through the entire data science process and give you the very basic for doing your own data analysis in Python, including: importing data, data cleaning, data transformation, exploratory data analysis, plotting and visualisations, statistical tests and modelling. During the tour, we will talk about some minimal programming knowledge that can help you better use Python for Data Science.

Learning Targets

- Knowledge about using Python for importing data and data cleaning, exploratory data analysis, plotting and visualisations
- Skills in creating, using and distributing Notebooks

Other Courses Offered

[Elective Course: Digital Medias, Body and Sex](#)

[Elective Course: New Digital Worlds](#)

[Elective Course: Social Medias and Digital Methods](#)

[Elective Course: Specialisation Course in Philosophy - Challenges to Philosophy in the Digital Age](#)

[Visual Communication in Digital Medias](#)

Open Laboratories

[Elective Course: Interactive Design in the FabLab](#)

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
RUC	In person lectures, exercises and possibly excursion	Hans H. K. Sønderstrup -Andersen (hsan@ruc.dk), Mads Hoby (hoby@ruc.dk)	BA	Elective course social science	One semester: 138 hours allocated for preparation, lectures, workshop participation, exercises, exam and possibly excursions	Danish	5 ECTS

Description

Fablab RUC invites you to use 8 lecture and practice sessions to understand how to quickly build and prototype interactive technologies in a Fablab. You will, in groups, work on designing your own physical prototype of an idea that you have to come up with yourself. The theme will be to work on creating robots with personality. I.e. that you must program your own interactive robot, which must seek to create curiosity and playful interactions. In the course you will - in addition to lectures on selected theory and method - have to design and build the robot itself as well as design the electronics and the interactions inside.

The focus is on working with interactive technologies in a lab setting. This is about making fast iterative prototypes and thinking through them. Theory of creative processes, human-machine interaction and human factors. Introduction to programming, Arduino, 3D printing and laser cutting.

Theory: Sketching user experiences, Programming, Tools (Laser cutting, programming, Arduino, Circuits)

Learning Targets

- Knowledge of selected theories, methods and concepts and their interplay within design science, human sciences and technical sciences
- Ability to use selected theories, methods and concepts in design science, human science and technical science to evaluate and test design
- Ability to organise and perform analysis of needs and perceived issues among users and citizens in order to develop designs and solution proposals

University of Konstanz

General Information

The University of Konstanz has a **Centre for Transferable Skills** ("SQ-Zentrum"). The interdisciplinary, career-oriented teaching program is primarily aimed at Bachelor's and Master's students whose exams regulations require the acquisition of key qualifications. However, the program is principally open to all interested students (see General Education Courses). There are some courses offered by the Centre for Transferable Skills that are aimed at students from specific programs (see Specialized Courses).

The Centre for Transferable Skills offers specific courses on **digital competency**. Within the Centre for Transferable Skills, the **Data Processing Module** ("EDV-Modul") teaches practical digital skills. Additionally, there is a new study format, the **ADILT program** (ADILT = Advanced Data and Information Literacy Track), designed to structure digital competencies along the whole course of study. That means, courses from the main study subject can be combined with general education courses to acquire comprehensive Data Literacy (technically, legally, socially, didactically) according to the standards of the [Data Literacy Charta](#) (momentarily only available in German). On the one hand, the ADILT courses aim at deepening practical and technical knowledge for students who don't acquire these skills in their studies. On the other hand, students who cover mostly technical skills in their studies can acquire social and normative knowledge related to digitalization. This stimulates cross-disciplinary discourse among all subjects. The goal of offering these courses is to create a digital environment for teaching and learning and thereby promote key competencies related to digitalization. This contributes to the university's aim to offer digital competencies courses across all subjects, make teaching more diverse and thus make studying more flexible.

Some courses from the course list on digital competencies can be used for the **ADILT certificate**. The ADILT certificate documents a graduate's study related and transferable skills in the field of data and information processing. Participants attend courses in three blocks: "Basics", "Application" and "Reflection". Along the way, students acquire knowledge and skills in the technical, mathematical, and legal foundations and applications of data and information processing. They also reflect on the social significance of these actions. After completing the program, participants are awarded the ADILT certificate. To obtain the certificate, you must acquire a total of 30 ECTS credits in courses that can be recognized in ADILT or that were specially developed for the ADILT program. In the following course overview, the courses that can be used for the ADILT certificate have the note "ADILT course". The ADILT lecture series is a required course (3 ECTS) (see below). You must earn at least the minimum number of ECTS credits in the blocks: "Basics" (9-12 ECTS), "Application" (6-9 ECTS) and "Reflection" (6-9 ECTS). More about the regulations of the ADILT certificate can be found [here](#) (in German). A list of courses offered in the current semester and the information for which block each course can be used can be found [here](#).

General Education Courses

Digital Competency



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Advanced Data and Information Literacy Track (ADILT) Lecture Series | KEY-16710

ADILT course

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	Lecture series, weekly, online	Falco Drießen (falco.driessen@uni-konstanz.de)	/	IT	offered each semester	German/English	3 ECTS

Description

The lecture series for the Advanced Data and Information Literacy Track (ADILT) programme is open to students of all subjects and serves as an introduction to topics ranging from data-based methods, to digitalization issues and information literacy from subject-specific and practical perspectives.

Program summer semester 2022

4.11.2021– Self-study unit: "Grundlagen der Informatik und Begrüßung zum ADILT" (welcome to ADILT and fundamentals of computer science) - Michael Grossniklaus, Department of Computer Science

11.11.2021 – "An Introduction to Quantum Computing" - Guido Burkard, Department of Physics

18.11.2021 – Teaching project: "Grundlagen künstlicher Intelligenz und ihre Anwendung in allen Schulfächern" (Basics of artificial intelligence and its application in all subjects) - Sebastian Krapp/Daniela Schuster, Department of Mathematics/BiSE

25.11.2021 – "Algorithmen und Criminal Justice" (Algorithms and criminal justice)- Krisztina Karzai, Law (University of Szeged)

02.12.2021 – "Smarter Staat heute, morgen oder nie?" (Smart state today, tomorrow or never?) - Andreas Krumtung, digitalization coordinator at the Lower Saxony Ministry of Internal Affairs and Sport

09.12.2021 – "Naturwissenschaften mit erweiterter Realität erleben - Einblicke aus der fachdidaktischen Forschung" (Experiencing science with augmented reality - insights from pedagogical research) - Johannes Huwer, teaching methodology in the natural sciences

16.12.2021 – Round table discussion (in German) with David Kriesel - David Kriesel, data scientist

13.01.2022 – Social Media Literacy – project with a local media centre - Isabell Otto, media studies

20.01.2022 – "It's the data, stupid" - York Sure-Vetter, National Research Data Infrastructure (NFDI)

27.01.2022 – "Artificial Intelligence" - Chris Boos, entrepreneur and consultant, expert on the Digital Council

Basics of Python Programming | KEY-16940

ADILT course

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	block seminar, online	Silke Husse (silke.husse@uni-konstanz.de)	/	IT	offered irregularly	German/English	3 ECTS

Description

This interdisciplinary course teaches students a basic understanding of programming with the programming language Python. They will be guided step by step through the most important concepts and principles of programming, starting with the installation and use of Python, data types and structures, functions, conditionals, iteration and object-oriented design. Through exercises, participants will be able to use the knowledge they have acquired in practice. To successfully complete this course, students are required to submit a small coding project.

Assessment

Active participation / programming assignment

ADILT: Computer Science Introductory Course | KEY-17180 | KEY-17190 | KEY-17200 | KEY-17210

ADILT course

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	self-study course, online	Dagmar Sorg (dagmar.sorg@uni-konstanz.de), Michael	/	IT	no fixed start or end date	German	3, 6, 9 or 12 ECTS

		Blumenschein (michael.blumenschein@uni-konstanz.de), Simon Martin (simon.martin@uni-konstanz.de)					
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Description

Why an introductory course to computer science?

Today, IT technologies affect (almost) all areas of our lives and professions. The speed of development is enormous. At the same time, many people often lack a basic understanding of computer science. However, this is necessary in order to be able to correctly assess a multitude of social processes and decisions and, in this way, to take responsibility in our digitalized world at work and in society. The ADILT Computer Science Introductory Course is designed to support students in this process and to help them gain an advantage in the job market.

Self-study course

The ADILT Computer Science Introductory Course is designed for students of all disciplines and requires no prior knowledge of computer science. It teaches basic concepts and terms of computer science.

The ADILT Computer Science Introductory course is a modular online self-study course. The course materials are accessible in ILIAS at any time and to all students and interested parties at the University of Konstanz. You can work through the course content yourself using the learning materials stored in ILIAS. At your own pace, at a time of your choice. The learning units, which are grouped into thematic modules, consist of videos, explanations and interactive elements as well as final quizzes for self-testing. In case of any uncertainties or if you need help, you will of course have the opportunity to ask questions and also to discuss with other participants.

Cross-semester

In contrast to (almost) all other courses at the University of Konstanz, the ADILT Computer Science Introductory course is semester-overlapping. It does not have to be started in one semester and be completed in the same semester. You can take it over several semesters. Another special feature is that you can start the course at any time, even during an ongoing semester or during semester breaks. To start, you only need to register in ILIAS for the ADILT Computer Science Fundamentals course (see link below). It is not necessary to register for the exams in ZEuS.

Content structure

Content-wise, the course is currently divided into 4 topics:



- Coding
- Data storage
- Transmission
- Evaluation (currently still in progress; expected to be complete in SS 2022).

Further topics are in progress and will be published gradually.

Assessment

For the acquisition of ECTS, an online exam on the selected content must be passed. One exam can be taken per topic area and thus 3 ECTS can be acquired per topic area. Depending on how many topics you work on and how many exams you take, you can earn 3, 6, 9 or 12 ECTS for the course. The course is credited as a key qualification (SQ).

The KIM.VideoLAB. Digital Video Editing & 3D Animations | KEY-16540

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	online self-study + Q&A sessions	Roland Fischer (roland.fischer@uni-konstanz.de)	/	IT	offered irregularly	German	3

Description

3D Animations | Blender (Introduction)

Enter the world of 3D animations with the free open source software BLENDER. We will teach you the necessary basic concepts and show you the most important methods and tools. Using practical examples, you will start with the first modelling steps and will be guided through materials, textures, light and camera to the output.

Video Editing Adobe Premiere Pro (Introduction)

The basic course for Adobe Premiere Pro consists of only one session. We will introduce you to the setup of Adobe Premiere Pro and give you a quick overview of the digital video editing process.

Video Editing | Adobe Premiere Pro (Advanced)

There are five different topics to choose from: Importing and managing media, editing and cutting audio, editing videos, applying special effects, exporting videos.

Assessment

Project (editing project or 3D model)

Introduction to Programming with MATLAB | KEY-17570

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	block course	Vincent Bezold (vincent.bezold@uni-konstanz.de)	/	IT	offered irregularly	German	3

Description

MATLAB is a programming language with an integrated development environment, which in recent years has established itself as one of the standard tools for numerical calculations and subsequent data visualisation in many areas of economy and science. Mathematical and statistical problems can be solved easily and elegantly with this programming language.

The course is designed for all students who want to learn basic programming skills in MATLAB. In addition to learning the most important MATLAB commands, students will gain insights into the wide range of possible applications. Students will be able to apply what they have learned in a practical way by doing various exercises themselves.

Contents include: Overview of the user interface - Basic operators and functions (loops, if-else, ...) - Basics of data processing (creating graphs, model fitting) - Application tasks from various fields (finance, biology, ...) - Outlook: app designing, Machine Learning, Simulink).

Target group: The course is open to students of all subjects and is primarily aimed at newcomers to the field of programming, data processing and data analysis. The course can also be interesting for students who have already had first programming experiences with other programming languages and additionally want to acquire basic skills in MATLAB.

Assessment

Active participation, programming task

Data Processing Module (“EDV-Modul”)

Excel for Work and Studies 1

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	online seminar (video conferences + self-study)	Jonas Budcke (jonas.budcke@uni-konstanz.de)	/	IT	offered irregularly	German	0 if taken individually, 3 if four courses from the data processing module are taken (for bachelor students)

Description

The course covers the following topics:

- Structure of Excel
- Entering text, numbers and dates
- Basic cell formatting
- Moving, copying, using the fill function
- Editing tables
- Basic arithmetic operations, calculating with simple formulas
- Structure and input of simple functions
- Relative and absolute cell references
- Working with the function wizard
- Use advanced and nested functions
- Structure and possible applications of the if-function

The course will be held using Windows and MS-Office 2016. The knowledge gained is transferable to other operating systems and office applications, such as Open Office, Libre Office, Mac Office.

Note

The ONLINE course starts in the form of a video conference (with BBB), in which content and organisational details are discussed. The learning material must be worked out independently via instructional videos. All necessary course content is available in ILIAS.

This course can be used by Bachelor students to complete the data processing module. This module consists of four courses that can be selected from our KIM-IT course list (excluding EXCEL 4). In addition to attending the seminar, you must also take an exam in each of the four courses (30-minute written exam, editing files). If you successfully complete all four exams, you will receive three credits for the IT module.

Assessment

For certificate of attendance: individually prepared, compulsory exercises

Literature

RRZN manuals of the University of Hannover, see also: <https://www.kim.uni-konstanz.de/services/lernen-und-arbeiten/it-handbuecher/>

Excel for Work and Studies 2

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	online seminar (video conference + self-study)	Johanna Bauer (johanna.bauer@uni-konstanz.de)	/	IT	offered irregularly	German	0 if taken individually, 3 if all four courses from the data processing module are taken (for bachelor students)

Description

The course covers the following topics:

- Create and design diagrams quickly, using the diagram elements
- Edit charts (adjusting axes, secondary axis, trend line, error indicators)
- Special use of dot (XY), bubble and compound charts
- Work with page layout, set up individual print options

- Using workbooks effectively, moving and copying worksheets, using cell references to other worksheets
- Protecting cells, worksheets and the structure of workbooks
- Outline tables and use 'partial result' calculations
- Sorting and filtering data
- Using the special filter
- Format data as a table and use database functions in the result row
- Create PivotTable and PivotChart

The course will be held using Windows and MS-Office 2016. The knowledge gained is transferable to other operating systems and office applications, such as Open Office, Libre Office, Mac Office.

Note

The ONLINE course starts in the form of a video conference (with BBB), in which content and organisational details are discussed. The learning material must be worked out independently via instructional videos. All necessary course content is available in ILIAS.

This course can be used by Bachelor students to complete the data processing module. This module consists of four courses that can be selected from our KIM-IT course list (excluding EXCEL 4). In addition to attending the seminar, you must also take an exam in each of the four courses (30-minute written exam, editing files). If you successfully complete all four exams, you will receive three credits for the IT module.

Requirements

Basic knowledge from Excel 1 is required.

Assessment

For certificate of attendance: independently prepared, compulsory exercises.

Literature

RRZN manuals of the University of Hannover, see also: <https://www.kim.uni-konstanz.de/services/lernen-und-arbeiten/it-handbuecher/>

Excel for Work and Studies 3

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS

UKON	online seminar (video conferences + self-study)	Birgit Rucker (birgit.rucker@uni-konstanz.de)	/	IT	offered irregularly	German	0 if taken individually, 3 if all four courses from the data processing module are taken (for bachelor students)
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Description

The course covers the following topics:

- Get a better overview with names (naming, use of names in formulas and functions)
- User-defined number formats and conditional formatting
- Specific date and time functions for calculations of projects
- Specific functions for text output and text concatenation
- The VLOOKUP and HLOOKUP functions
- Target value search
- Formula monitoring, formula checking
- Excel data tools (text in columns, flash-fill, remove duplicates and data validation)
- Preparing external data in Excel (importing and processing csv and txt files in Excel, importing data from the web)

The course will be held using Windows and MS-Office 2016. The knowledge gained is transferable to other operating systems and office applications, such as Open Office, Libre Office, Mac Office.

Note

The ONLINE course starts in the form of a video conference (with BBB), in which content and organisational details are discussed. The learning material must be worked out independently via instructional videos. All necessary course content is available in ILIAS.

This course can be used by Bachelor students to complete the data processing module. This module consists of four courses that can be selected from our KIM-IT course list (excluding EXCEL 4). In addition to attending the seminar, you must also take an exam in each of the four courses (30-minute written exam, editing files). If you successfully complete all four exams, you will receive three credits for the IT module.

Requirements

Knowledge from Excel 1 and 2 are required.

Assessment

For certificate of attendance: independently prepared, compulsory exercises

Literature

RRZN manuals of the University of Hannover, see also: <https://www.kim.uni-konstanz.de/services/lernen-und-arbeiten/it-handbuecher/>

LaTeX - An Alternative to Word

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	online seminar (video conferences)	Hannes Schwarz (hannes.schwarz@uni-konstanz.de)	/	IT	offered irregularly	German	0 if taken individually, 3 if all four courses from the data processing module are taken (for bachelor students)

Description

The course teaches necessary skills you will need in your studies. In particular, the techniques needed to write a scientific paper (term paper, bachelor's thesis, master's thesis or diploma) are addressed.

The course covers the following topics:

- Introduction and setup
- Structuring a document
- Fonts
- Formatting text
- Tables
- Counters and lengths
- Page layout
- Mathematical formulas
- Project management for large documents
- Generation of a keyword index
- Creation of a bibliography

- Graphics, images and specialties of PDFs
- Creation of presentations

The course works with Windows, with the distribution MiKTeX and the LaTeX editor TeXMaker. The acquired knowledge is transferable to other operating systems and versions.

Note

The course takes place ONLINE in the form of conference calls. The handout will be provided digitally on Ilias.

This course can be used for Bachelor students to complete the data processing module. This module consists of four courses that can be selected from our KIM-IT course list (excluding EXCEL 4). In addition to attending the seminar, you must also take an exam in each of the four courses (30-minute written exam, editing files). If you successfully complete all four exams, you will receive three credits for the IT module.

Assessment

For certificate of attendance: course attendance and mandatory exercises

Word - Applications, Templates, and Forms ONLINE

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	online seminar (video conferences + self-study)	Johanna Bauer (johanna.bauer@uni-konstanz.de)	/	IT	offered irregularly	German	0 if taken individually, 3 if all four courses from the data processing module are taken (for bachelor students)

Description

The course covers the following topics:

- Structure of Word
- Setting up individual default fonts, using style sheets

- Text formatting with indents, frames, shading, enumerations and numbering
- Using the WORD table with special design features
- Create a letter template with an address field and save it as template
- Set up page formatting and line breaks
- Design headers and footers
- Insert graphics, objects, symbols and date fields
- Create forms with form fields and protect documents
- Protect forms divided into sections
- Apply new commands in predefined texts

The course is based on Windows and MS-Office 2016 and is transferable to other operating systems and office applications such as Open Office, Libre Office, Mac Office.

Note

The ONLINE course starts with a video conference (with BBB), in which content and organisational details are discussed. The learning material must be worked with independently via instructional videos. All necessary course content is available on ILIAS.

This course can be used for Bachelor students to complete the data processing module. This module consists of four courses that can be selected from our KIM-IT course list (excluding EXCEL 4). In addition to attending the seminar, you must also take an exam in each of the four courses (30-minute written exam, editing files). If you successfully complete all four exams, you will receive three credits for the IT module.

Assessment

For certificate of attendance: independently prepared, compulsory exercises

Word - Structure and Design Scientific Papers

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	online seminar (video conference s + self-study)	Anke Stehle (anke.stehle@uni-konstanz.de)	/	IT	offered irregularly	German	0 if taken individually , 3 if all four courses from the data processing module are taken

							(for bachelor students)
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Description

The course covers the following topics:

- Basic concepts of designing a scientific paper
- Creating and using document templates
- Applying page formatting, page breaks, and section breaks
- Assigning, customising, and creating style sheets
- Creating and formatting a table of contents individually
- Working with headers and footers, applying page numbering correctly
- Use the column title with the help of the 'StyleRef' field
- Insert footnotes and cross-references
- Insert and label tables and graphics
- Create a list tables and a list of figures

The course is based on Windows and MS-Office 2016 and is transferable to other operating systems and office applications such as Open Office, Libre Office, Mac Office.

Note

The ONLINE course starts with a video conference (with BBB), in which content and organisational details are discussed. The learning material must be worked with independently via instructional videos. All necessary course content is available on ILIAS.

This course can be used for Bachelor students to complete the data processing module. This module consists of four courses that can be selected from our KIM-IT course list (excluding EXCEL 4). In addition to attending the seminar, you must also take an exam in each of the four courses (30-minute written exam, editing files). If you successfully complete all four exams, you will receive three credits for the IT module.

Assessment

For certificate of attendance: independently prepared, compulsory exercises

Designing Presentations Professionally

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	online seminar (video conferences + self-study)	Johanna Bauer (johanna.bauer@uni-konstanz.de)	/	IT	offered irregularly	German	0 if taken individually, 3 if all four courses from the data processing module are taken (for bachelor students)

Description

The course covers the following topics:

- Structure of PowerPoint, using different views
- Creating presentations, using different designs
- Edit slides with text placeholders, special character and paragraph formatting, footers
- Professional visualisation with different slide layouts (bullet points, tables, diagrams, SmartArt graphics)
- Work effectively with the copying commands, duplicating slides, transferring formats
- Creating and designing objects
- Inserting graphics and other media
- Working with the slide master, customising slide layouts, inserting new slide masters
- Controlling the slide presentation
- Using slide transitions and animation effects
- Using different ways of saving a presentation
- Saving a presentation as a template
- Printing slides and the accompanying material

The course is based on Windows and MS-Office 2016 and is transferable to other operating systems and office applications such as Open Office, Libre Office, Mac Office.

Note

The ONLINE course starts with a video conference (with BBB), in which content and organisational details are discussed. The learning material must be worked with independently via instructional videos. All necessary course content is available on ILIAS.

This course can be used for Bachelor students to complete the data processing module. This module consists of four courses that can be selected from our KIM-IT course list (excluding EXCEL 4). In addition to attending the seminar, you must also take an exam in each of the four courses (30-minute

written exam, editing files). If you successfully complete all four exams, you will receive three credits for the IT module.

Assessment

For certificate of attendance: independently prepared, compulsory exercises

Navigating the Digital World Safely - With Computer, Tablet, and Smartphone

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	online seminar (video conferences + self-study)	Jonas Budcke (jonas.budcke@uni-konstanz.de)	/	IT	offered irregularly	German	0 if taken individually, 3 if all four courses from the data processing module are taken (for bachelor students)

Description

The course covers the following topics:

- Handling laptops and other mobile devices
- System security - how can I keep my system safe?
- Network protection - what can happen to me and how can I protect myself from it?
- Internet security/data protection - how can I move safely on the Internet and what about the traces of my data?
- Data backup - what do I need to do to ensure that my data is backed up in the event of a system failure?

This course is based on WINDOWS 10, but other operating systems will be addressed (Apple macOS/iOS and Android).

Note

The ONLINE course starts with a video conference (with BBB), in which content and organisational details are discussed. The learning material must be worked with independently via instructional videos. All necessary course content is available on ILIAS.

This course can be used for Bachelor students to complete the data processing module. This module consists of four courses that can be selected from our KIM-IT course list (excluding EXCEL 4). In addition to attending the seminar, you must also take an exam in each of the four courses (30-minute written exam, editing files). If you successfully complete all four exams, you will receive three credits for the IT module.

Assessment

For certificate of attendance: independently prepared, compulsory exercises

Reflection Courses

In the following, two exemplary courses are described.

Data Philosophy | Data From a Philosophical Perspective | KEY-17140

ADILT course

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	weekly seminar, in person	Dr. Ali Zolfagharian (ali.zolfagharian@uni-konstanz.de)	/	IT	offered irregularly	English	3 or 6 (with final examination)

Description

This course is an introduction to the philosophical study of foundations, methods, and implications of data science. It addresses general philosophical questions arising in the data science process, the process which starts with gathering raw data and producing clean data, then it continues with finding patterns in Data and formulating sensible hypotheses, and it ends with modelling and predicting.

Prerequisites

This course has no specific prerequisites.

Assessment

Based on the interactive course and the final exam there will be a pass/not pass outcome.

3 credits can be acquired by participating in the interactive course, 6 credits can be acquired with an additional final exam answering 6 from 8 questions.

Data Feminism - Reading Seminar | KEY-17240

ADILT course

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	Biweekly discussion meetings, biweekly reading assignments	Susan Reichelt (susan.reichelt@uni-konstanz.de)	/	IT	offered irregularly	English	3 or 6

Description

“Today, data science is a form of power. It has been used to expose injustice, improve health outcomes, and topple governments. But it has also been used to discriminate, police, and surveil. This potential for good, on the one hand, and harm, on the other, makes it essential to ask: Data science by whom? Data science for whom? Data science with whose interests in mind?” (data-feminism.mitpress.mit.edu) In this seminar, we will read Catherine D'Ignazio and Lauren Klein's Data Feminism (available open access) and related texts to discuss data as embedded within social, racial, and economic inequalities. We will disentangle how much of our daily lives is shaped by (biased) data and how to work towards greater awareness when it comes to applying and communicating data science in various contexts.

The seminar will consist of biweekly discussion meetings, with every other week set aside for reading assignments (each following another chapter and one of seven principles set out by the authors of Data Feminism).

Assessment

To complete the course with 3 ECTS, I expect active participation during the reading and discussion sessions. In order to obtain 6 ECTS, you are asked to put together an infographic that represents an aspect of power in data of your choosing.

Specialised Courses

Digital Competencies

Data Visualisation for Social Sciences & Humanities | KEY-17560

ADILT course

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	weekly seminar, in person	Susan Reichelt (susan.reichelt@uni-konstanz.de)	/	IT	offered irregularly	English	6

Description

In this seminar, we will take a look at different types of data from social sciences and humanities subjects, including quantitative data, such as data from surveys and questionnaires, data from distant reading analyses, social networks, as well as more qualitative data from close reading or interviews. Along with the effort to make scientific work more approachable and understandable to different audiences, the right visualisation of such data has become increasingly meaningful. This course aims at providing a solid background on different visualisation techniques, focusing primarily on practical application and effective data representation. As well as learning the basics of constructing different visualisations, we will also reflect on topics such as inclusive and ethical visualisation, colour and shape theory, as well as visual metaphor and storytelling.

The data in this course will be provided by the instructor, although you might bring in some examples from your respective fields of study if you wish. No prior knowledge of any visualisation software is needed – all tools will be introduced with step-by-step tutorials and small projects.

We will work on a variety of platforms to organise and visualise the data, including Microsoft Excel, R & RStudio (ggplot2, Plotly), RawGraphs and Palladio, as well as tools to edit visualisations for aesthetics, including Microsoft Powerpoint and Inkscape. All tools are freely accessible or include appropriate open-source alternatives (Open Office, Cryptpad).

Assessment

Examination requirements – active participation in class, a brief presentation on visualisation highlights (10 minutes), and a mini-portfolio including at least 4 visualisations based on a dataset.

Python for Finance | KEY-16640

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UKON	weekly seminar, in person	Eva Isakeit (eva.isakeit@uni-konstanz.de)	Students of Economics	IT	offered irregularly	English	3

Description

This soft skill course combines programming with finance. The course enables students to use the Python programming language to solve financial problems, similar to the examples from Investment and Corporate Finance (ABWL1 and BWL4).

Python provides a convenient and reliable tool for handling and reporting data as well as graphical illustrations. It has become the de facto standard for finance applications and is thus particularly relevant for the job market.

Note

This course will only be open for students of Economics (WiWi) and students with Economics as a subsidiary subject (Nebenfächler), not for Mathematical Finance Students (FiMa).

Assessment

The assessment (pass/fail) will be based on weekly homework, a journal to hand in at the end of the course and your regular attendance. More detailed information on the rules will be provided in the first session.

Academic Development Courses

eLearning Consultation Hour

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
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UKON	weekly consultation hour, online	Team E-Learning	Teaching staff - doctoral candidates, postdocs, professors	IT	1 October 2021 to 31 March 2022	German	/
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Description

The eLearning team offers a consultation hour via video conference for all employees of the University of Konstanz every Wednesday from 14:00 to 16:00. Here you can ask all your questions about eLearning, ILIAS, web conferencing systems, tools, etc.

Format Without a Name - The Experimentation Format for Digital Tools

University	Teaching format	Teacher/Faculty	Education level	Field	Duration	Language	ECTS
UKON	weekly, workshop, online	Team E-Learning	Lecturers and academic management	IT	1 October 2021 to 31 March 2022	German	/

Description

"Format without a name" tests digital tools at the University of Konstanz. (Almost) every Friday we meet in an informal setting from 10:30 to 12:00 to test "new" digital tools together for their suitability in the university context. The format is open to all faculty, staff and students of the university. Suggestions for tools are welcome.

University of Paris 8

General Education Courses

The [Digital Pedagogy Support Office \(BAPN\)](#) is a transversal pedagogical service, attached to the Training Department of the University of Paris 8.

The BAPN office offers support to teachers in the construction of educational and digital projects and contributes to the realisation of someone's project by bringing its expertise in pedagogical engineering, with appropriate tools and means.

It also provides computer training for undergraduate students and prepares them for the PIX certification. Each Bachelor's degree program offers a training course on digital skills. This training is provided by the Digital Pedagogy Support Office (BAPN) in the form of computer courses:

- Digital skills - PIX preparation
- Desktop skills in English
- Informatics in the Arts

Digital Skills and PIX Preparation DBE7EX01

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
University of Paris 8		Digital Pedagogy Support Office (BAPN) bapn@univ-paris8.fr	BA	IT	12 sessions offered during the whole academic year on-site and in distance	French	ECTS

Description

PIX is a public project for an online platform for the assessment and certification of digital skills. It is a useful tool for assessing the digital skills and knowledge of high school students, students, professionals and citizens. Its objective is to accompany the raising of the general level of digital knowledge and skills and thus to prepare the digital transformation of our whole society and economy.

The algorithm of PIX adapts to each person's abilities, always proposing exercises that are slightly more difficult than those you have already succeeded in. If an exercise is failed, links to explanatory tutorials will be proposed.

Thus, the tests will assess knowledge, skills and the ability to identify digital issues.

Innovative evaluation methods will also be proposed, going beyond the usual framework of multiple choice (MCQ) and favouring in situ measurement of skills based on activities carried out in their real digital environment:

- interactions,
- file handling,
- problem solving,
- creative productions,
- peer assessments,

It is worth mentioning that PIX is not only an evaluation platform. It also allows someone to "**learn to use and understand the digital world**".

Objectives

During the 12 sessions, participants will study and acquire different notions that will allow them to progress. There are six levels for each skill.

With each training session on the PIX platform, participants will obtain a certain number of PIX points per skill that can get up to 768 PIX! Participants have the possibility to redo each test every two weeks to improve their level.

The objective is to train and progress at their own rhythm in order to obtain the best score and therefore the best level for each skill and reach level 6! At that point, they will be ready for the PIX Certification!

The PIX evaluation, which is in accordance with the European **DIGCOMP** standard, is based on five levels in sixteen competencies. They are divided into five major areas:

1. Information and data

1.1 Conduct research and information monitoring

Conduct research and information monitoring to respond to a need for information and to keep up with the latest news on a subject (with a search engine, within a social network, by subscribing to news feeds or newsletters, or any other means).

Related topics

Web and browsing; Search engine and query; Information monitoring, feeds and curation; Information evaluation; Source and citation; Internet governance and web openness; Information abundance, filtering and personalization; Critical reflection on information and media; Copyright.

1.2 Managing data

Store and organise data for retrieval, preservation and easy access and management (with a file manager, online storage space, tags, folders, databases, an information system, etc.).

Related topics

Folder and file; Storage and compression; Transfer and synchronisation; Search and metadata; Semantic indexing and tagging; Data structuring; Information system; Data localization and applicable law; Business models and strategies; Information system security.

1.3. Process data

Apply treatments to data to analyse and interpret them (with a spreadsheet, a program, a survey processing software, a calculation query, etc.).

Related topics

Quantitative data, data type and format; Computation, statistical processing and graphing; Data flow; Massive data collection and exploitation; Algorithmic thinking and computing; Privacy and confidentiality; Interoperability

2. Communication and collaboration

2.1 Interacting

Interact with individuals and small groups to exchange in various contexts related to private life or professional activity, on an ad hoc and recurring basis (with e-mail, instant messaging, video-conferencing, etc.).

Related topics

Protocols for interaction; Modalities of interaction and roles; Applications and services for interaction; Privacy and confidentiality; Digital identity and signals; Connected life; Communication codes and netiquette

2.2. Sharing and publishing

Sharing and publishing information and content to communicate one's own productions or opinions, relaying those of others in a public communication context (with sharing platforms, social networks, blogs, forum and comment spaces, CMS, etc.).

Related topics

Sharing protocols and modalities; Applications and services for sharing; Publication rules and visibility; Social networks; Freedom of expression and right to information; Online training; Privacy and confidentiality; Digital identity and signals; Social practices and citizen participation; e-reputation and influence; Writing for the web; Communication codes and netiquette; Copyright

2.3 Collaborate

Collaborate in a group to carry out a project, co-produce resources, knowledge, data, and to learn (with collaborative work and document sharing platforms, online editors, change tracking or version management functionalities, etc.).

Related topics

Collaboration methods and roles; Document sharing and online editing applications and services; Versions and revisions; Access rights and access conflicts; Project management; Copyright; Connected life; Privacy and confidentiality

2.4. Enter the digital world

Master the strategies and issues of online presence, and choose one's practices to position oneself as a social, economic and civic actor in the digital world, in relation to its rules, limits and potentialities, and in accordance with values and/or to meet objectives (with social networks and tools allowing to develop a public presence on the web, and in relation to civic life, professional life, private life, etc.)

Related topics

Digital identity and signals; e-Reputation and influence; Communication codes and netiquette; Social practices and citizen participation; Economic models and strategies; Ethical issues and values; Internet governance and web openness; Freedom of expression and right to information

3. Content creation

3.1. Develop text-based documents

Produce documents with a majority of textual content to communicate ideas, report on and enhance one's work (with word processing, presentation, web page creation, concept map, etc.).

Related topics

Text-based document editing applications; Structure and separation of form and content; Illustration and integration; Graphic design and visual identity; Interoperability; Document ergonomics and reusability; Accessibility; Copyright

3.2. Develop multimedia documents

Develop documents with multimedia content to create one's own multimedia productions, enrich one's mainly text-based creations or create a transformative work (mashup, remix,

etc.) (with image/sound/video/animation capture and editing software, software useful for pre-processing before integration, etc.)

Related topics

Multimedia document editing applications; Sound, image and video capture and digitization; Interoperability; Accessibility; Copyright; Graphic design and visual identity

3.3. Adapt documents to their purpose

Adapt documents of all types according to their intended use and master the use of licences to allow, facilitate and supervise their use in various contexts (frequent updating, multi-channel distribution, printing, putting online, projection, etc.) (with software functionalities linked to the preparation of printing, projection, putting online, format conversion tools, etc.).

Related topics

Licences; Disseminating and putting a document online; Document ergonomics and reusability; Writing for the web; Interoperability; Accessibility; Privacy and confidentiality

3.4. Programming

Writing programs and algorithms to meet a need (automate a repetitive task, accomplish complex or time-consuming tasks, solve a logical problem, etc.) and to develop rich content (game, website, etc.) (with simple computer development environments, task scheduling software, etc.).

Related topics

Algorithm and program; Representation and coding of information; Complexity; Algorithmic thinking and computer science; Collection and exploitation of massive data; Artificial intelligence and robots

4. Protection and security

4.1. Secure the digital environment

Securing equipment, communications and data to protect against attacks, traps, inconveniences and incidents that could affect the proper functioning of hardware, software,

websites, and compromise transactions and data (with protection software, encryption techniques, mastery of good practices, etc.).

Related topics

Attacks and threats; Encryption; Prevention and protection software; Authentication; Information system security; Privacy and confidentiality

4.2. Protect personal data and privacy

Controlling one's tracks and managing personal data to protect one's privacy and that of others, and adopting an informed practice (with the setting of confidentiality parameters, regular monitoring of one's tracks by alerts or other tools, etc.).

Related topics

Personal data and the law; Tracks; Privacy and confidentiality; Massive data collection and exploitation

4.3. Protecting health, well-being and the environment

Prevent and limit the risks generated by digital technology on health, well-being and the environment, but also take advantage of its potential to promote personal development, care, inclusion in society and the quality of living conditions, for oneself and for others (with knowledge of the effects of digital technology on physical and mental health and on the environment, and of digital practices, services and tools dedicated to well-being, health and accessibility).

Related themes

Workplace ergonomics; Wireless communication and waves; Environmental impact; Accessibility; Connected life; Sensors; Artificial intelligence and robots; Health; Privacy and confidentiality.

5. Digital environment

5.1. Solve technical problems

Solve technical problems to ensure and restore the proper functioning of a computer environment (using software or operating system configuration and maintenance tools, and mobilising the necessary technical or human resources, etc.).

Related topics

Computer failure and support; Administration and configuration; Maintenance and update; Backup and restoration; Interoperability; Complexity

5.2 Building a digital environment

Installing, configuring and enhancing a digital environment (hardware, tools, services) in order to have a framework adapted to the activities carried out, to the context in which they are carried out or to values (with tools for configuring software and operating systems, installing new software or subscribing to services, etc.)

Related topics

History of computing; Computing and hardware; Software, applications and services; Operating system; Computer network; Supply (hardware, software, service); Economic models and strategies

Requirements

Before registering and choosing a group, participants must take a PIX placement test which will allow the Digital Pedagogy Support Office to evaluate them and know their level relative to their basic digital skills; at the end of this test and the overall result obtained, there will be a choice of group. According to the participant's results they will then have the possibility to register in a course adapted to their level ("beginner", "master" or "expert").

It is important to note that the Pix certification takes place at the University of Paris 8 in June. Information about this course can be found on Moodle : <https://moodle.iedparis8.net/>

Desktop Skills in English DBE7LANG

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS

University of Paris 8		Digital Pedagogy Support Office (BAPN) bapn@univ-paris8.fr	BA	English Language, LLCE English, LEA English	3 hours per week for each semester	English	3 ECTS
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Description

Digital Pedagogy Support Office (BAPN) offers IT courses (5 per year) in English to students of the English language degree (LLCE/LEA). This is a computer course taught in English.

Objectives

The double objective of this course is to acquire skills in digital tools while developing the language in the field of computing.

Specialised Courses

Informatics in the Arts

Description

The Digital Pedagogy Support Office (BAPN) offers **12 digital courses per semester for undergraduate students in Arts**. These courses are accessible without prerequisites and aim to introduce undergraduate students to digital skills related to digital art production: video editing, image editing, audio visual animation, sound production, etc.

Below are two examples of them:

Mixed Media Music (Introduction to Sound Writing) DBELMMU1

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS

University of Paris 8		Iván Adriano Zetina Ríos (bapn@univ-paris8.fr)	BA in Arts	Arts	12 sessions of 3 hours - 36 hours/semester	French	3 ECTS
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Objectives

The students of L1 and L2 in musicology, cinema, plastic arts and theatre will be able to use the Reaper software for sound writing allowing them to create an individual or collective artistic project.

Course Presentation

Work sessions on the Reaper software: knowledge of the practical possibilities and mastery of digital tools.

Sessions on the theoretical foundations and notions of digital audio: during these sessions, students will learn the theoretical foundations on which sound writing and electronic music creation are based.

Sessions devoted to the panorama of electronic music (history, repertoire and composers): the objective of these sessions is to give some elements on the different aesthetics possible in sound writing thanks to the computer.

Video Montage DBELMV11

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
University of Paris 8		Vincent Mesaros (bapn@univ-paris8.fr)	BA in Arts	Arts	12 sessions of 3 hours - 36 hours/semester	French	3 ECTS

Objectives

Discover video editing and motion design (graphic animation). Become autonomous in the handling of video images, from image acquisition to video export, including editing and effects management. The course will propose an experimental approach to test the different tools of the Première pro

software. It will be punctuated by simple analyses of video editing, and exercises that will place us in a professional context: making motion design in compliance with an imposed graphic charter, designing and editing a film trailer.

Requirements

Know how to use the basic functions of a computer.

Note

Première Pro is a relatively simple program, but editing requires elaborate skills that will be briefly mentioned. They are theoretical for film and documentary, and graphic for motion design.

Other Courses Offered

1. [Photo Editing](#)
2. [Stereogram](#)
3. [Hybrid Images: Create digital collages from photographs](#)
4. [Photo Studio](#)
5. [Introduction to desktop publishing on Indesign](#)
6. [Graphic Design](#)
7. [Digital Design](#)
8. [Audiovisual editing](#)

Open Laboratories

ArTeC Experimental Discoveries - Practical Workshops

Introduction to Photography, Sound Recording, Editing

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS

University of Paris 8		Alexandre Boutin, Patrick Masclaux (patrick.masclaux@univ-paris8.fr)	MA in Arts	Arts	4 sessions of 3 hours each	French	3 ECTS
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Description

These modules are sequential and constitute a coherent audiovisual path. Ideally set up in small groups, these modules will allow students to jointly develop a video and sound approach appropriate for documentary, institutional or creative video use.

Introduction to photography

The first module will introduce students to the theoretical and technical basis of digital camera operation:

- Exposure & focal lengths (aperture, sensitivity, shutter speed, choice of optics and impact on aesthetic and technical aspects.
- White balance, temperature and colorimetric adjustment.
- Recording format and practices.
- Practical application

Introduction to sound recording

This second module will introduce students to the theoretical and technical basis of a recorder and a microphone:

- Preamp mixers and recorders
- Overview of the different existing microphones and their applications (type of microphones, power supply, directionality)
- Choose and prepare your device (HF installation, etc)
- Practical application

Introduction to editing/montage

Following module 2, students will be asked to produce a filmic object of their choice. The next two modules will provide an introduction to the professional editing software Adobe Première Pro and a practical application via the editing of their project:

- Theoretical bases on image editing
- Overview of formats and codecs in use for editing and broadcasting
- Prepare an editing project (Import, Chutiers, Index your project, synchronise sound and image rushes)

- Create an editing timeline
- Export and practical application

Expected student profile

It is a technical initiation for beginners or self-taught people who already have a little practice or an approach of the audio visual.

Virtual Reality Headset

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
University of Paris 8		Jean-François Jego (jean-francois.jego@univ-paris8.fr)	MA in Arts	Arts	Two semesters (1 semester in Master 1 and 1 semester in Master 2)	French	3 ECTS

Description

Virtual reality and augmented reality are artistic creation mediums that place the experience at the centre. This experience can be realistic, symbolic or imaginary.

Objectives

The objective of the course is to learn the fundamental principles of virtual reality and augmented reality, exploring the processes of immersion and interaction involved in the creation and experimentation of virtual environments. The course articulates theory and practice with mixed reality material. The objectives are the following:

- Learn the basics of augmented reality and virtual reality and understand the processes of immersion and interaction.
- Articulate theory on the sensorimotor, cognitive, functional and aesthetic processes at work and practice with materials and software.
- Acquire the tools to be autonomous and thus understand the possibilities of the media.

Equipment required

Individual laptop (Windows PC preferable, MAC can be used, but more limited).

Expected student profile

Students with an artistic and/or computer science background who have a background in 3D modelling or programming languages with a strong motivation for digital art, technology and science.

3D Printing

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
University of Paris 8		Vincent Meyrueis (vincent.meyrueis@univ-paris8.fr)	MA in Arts	Arts	Two semesters (1 semester in Master 1 and 1 semester in Master 2)	French	ECTS

Description

The development of interactive 3D modelling tools, the robotization of production facilities and the emergence of additive manufacturing technologies have profoundly transformed our approach to the production of mechanical objects and parts for industry and the general public. These transformations have notably contributed to free the form allowing to optimise the objects or parts with regard to technical or ecological constraints, but also to open the creativity of artists, designers and engineers in their realisation.

The decrease in costs related to additive manufacturing technologies (3D printing) has allowed a democratisation of the latter, and to consider new modes of design or manufacturing where users can become a force of proposal by manufacturing their products themselves at home or within a network of "Fab Labs" based on the expertise of a community of "Makers".

The objective of this workshop is to better understand and comprehend the concepts, tools and technologies around computer-aided manufacturing and 3D printing.

Expected student profile

No particular expectations.

Other Courses Offered

1. Digital anthropologies
2. Unplugging the work. Producing, publishing and disseminating in the post-digital age
3. The Writing Room
4. Critical technologies
5. Ableton Live
6. Web-documentary
7. Arduino
8. Display system & graphic design
9. Introduction to digital creation in Pure Data
10. Digital blind spots
11. Virtual creativity, shared realities II: the white rabbit
12. Citizen games II - Belgica: Territory of Impression
13. Digital Art, History and Aesthetics
14. Introduction to Programming for and with the Performing Arts
15. Creation of sound spaces
16. Contemporary cinema questions the world: a new state of images
17. Thinking and imagining the experimental writing of a script for animated films
18. Digital storytelling as a way of citizen expression
19. Multiple approaches to translation: collaborative, multilingual, interdisciplinary (international program)
20. Algorithms, platforms and new forms of work: (post or neo) operaism in the contemporary world
21. The "proof by the image" in pictures (research, experimentation, creation)
22. Archives between poetics, politics and violence of history
23. Performances and technologies of the gender
24. E-textile and digital art practices
25. Processing: an art-oriented programming environment (classes & objects)
26. Digital Literary Devices & Augmented Textuality
27. Media Hydrology
28. Understanding the social uses of digital technology through a socio-photographic survey
29. Arts and Media Ecology
30. TypoFilm
31. Sound and image creation: installations and devices
32. Workshop-laboratory of ethnographic research in the service of artistic creation

For more information and details for the courses proposed by ArTeC visit the site <https://anyflip.com/allsr/ocry/> (French only)

Academic Development Courses

The **UNIF** (Université Numérique Île-de-France) offers teachers/researchers and administrative staff of its member institutions a wide range of training courses on digital tools and practices, in addition to the training plans of the institutions. Set up in 2009, this program has already attracted 12,000 registrations and offered 1,200 training sessions. This regional mutualization initiative is unprecedented in the French university landscape, and has been echoed internationally.

How to Master Your Computer

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language
University of Paris 8		UNIF (Digital University of Ile-de-France) formation@unif.fr	Offered for all the Teaching Staff	IT	Throughout the year	French

Objectives

- Improve the computer skills
- Learn the office tools
- Learn how to use a Mac or Windows PC

Teaching with Digital Technologies

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language
University of Paris 8		UNIF (Digital University of Ile-de-France) formation@unif.fr	Offered for all the Teaching Staff and New Lecturers	IT	7 modules	French

Objectives

- Design a course presentation
- Raising students' awareness in documentary research
- Propose and organise collaborative work with students
- Design online exercises

Other Courses Offered

Learn how to make a video/ podcast

Workshop in French offered throughout the year for all the teaching staff. Its objective is to provide individual support to make a video/podcast.

Working with digital technology in higher education and research

Seven workshops per year (November to May)/2 hours each in French offered for the teaching staff. Its objective is to present the digital tools and services (data, images, sounds, illustrations) for process, dissemination and preservation of scientific information.

Distance teaching in higher education

Six modules/2 hours each in French offered for the new lecturers and all the teaching staff.

Objectives

- Support teachers in teaching with digital technology, share tools,
- Offering possible solutions and providing answers to questions about these new activities.

University of the Aegean

General Information

At the UAegean University, depending on the different cognitive fields developed by each Department, digital courses offered can be of general education or specialised education either compulsory or elective and they are offered in the frame of each program of studies (at bachelor or master level) depending on its specific needs and objectives and with the relevant requirements. In



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this very frame and following the particular structure and logic of each program of studies some of the courses require the completion of earlier courses of basic computer skills, whereas many Departments of the University of the Aegean offer a Certification of computer skills by attending specific curriculum courses.

Thus, an extended range of digital courses is offered in the UAegean covering different areas and types of this scientific subject and different needs of the beneficiaries at research and labour market level, on a general (basic or introductory courses) or advanced/specialised basis (s. below the indicative list).

A list of thematics, from the UAegean courses offered can be as follows:

- Programming: Introduction to computer programming, Structured Programming, Programming Methodologies and Languages, Object-oriented Programming, Advanced Topics of Programming Languages, Internet Programming, Computational Logic and Logical Programming, Programming in WWW, Object-Oriented Programming , Introduction to Informatics and Programming, Computer Programming, Computational Logic and Logical Programming, Dynamic Programming, Advanced Programming Languages, Scientific Programming with the Python programming language.
- Computer Sciences: Introduction to Computer Science and Communications, Computer Communications, Computer Networks, Computer Network Security and Privacy Enhancing Technologies, Computer Vision, COMPUTER BASIC APPLICATIONS, Applied Computer Science, Computational/Evolutionary Optimization Methods and Applications.
- Information and Communication Systems: Security, Information Systems Management, Methodologies & Tools for Information Systems Analysis & Design, Information Systems Analysis and Design, Information and Communication Technology (ICT) Systems for Shipping and Transport, Management Information Systems, Special Topics on Information Systems, Management Information Systems, Information Systems, Introduction to Information and Communication Technologies, Evolution of Information and Communication , Information Theory, Information Retrieval, Informatics, Methodologies & Tools for Information Systems Analysis & Design, Evolution of Information and Communication Technologies, Information Security.
- Databases: Data Analysis, Contemporary Issues of Databases, Categorical Data Analysis, Applied Topics in Data Structures and Databases, Databases & Data Mining, Data Mining from Digital And Web Content, Privacy and Data Protection Law, Data Structures.
- Design: Development of Mobile Computing Applications, Logic Design, Design and Technology of e-Services, Design and Development of Websites and Web Applications, Theory and Design of Digital Games, Exhibition Design , Digital Exhibitions, Sound Design, Interactive Design, Graphic Design, Digital Systems Design, Design And Analysis Of Mechanisms, Design, Development And Evaluation Of ICT Computer Basic Applications, Introduction To Computer Aided Design (CAGD), Product Design, Computer-Aided Design, Current technologies for design and prototyping of industrial products, Information Design, Design Theories & Methodologies, Detailed Product Design, Graphic Design, Design and Manufacturing Technologies.
- Operations: Management I, Operations Research I, Operating Systems, Special Issues on Operational Research, Operational Research (Linear and Dynamic Programming).
- Geographic Information Systems: Introduction to Geoinformatics, GIS, GIS Applications, "Information and communication technologies, Special Topics in Geographic Analysis in Teaching Geography, "Special Topics in Geographic Information Systems, Qualitative Methods in Geography, Environmental Applications of G.I.S., GIS Applications in the Marine Environment", Geographic Databases, Introduction to Remote Sensing, Application of

- Remote Sensing, Introduction to Remote Sensing, Environmental Applications of Remote Sensing, Special Topics in Cartography.
- Discrete Mathematics: Statistics I, Numerical Analysis*, Quantitative Methods, Statistics, Multivariate Statistical Analysis, Assessment and Evaluation in Mathematics: Classical and Contemporary Theories with the Use of New Technologies, Algorithms and Data Structures, Statistical Software and Data Analysis, Quantitative Analysis of Ecological Data, Statistics, Qualitative Methods in Geography, Applied Linear Algebra, Numerical Analysis, Algorithms and Combinatorial Optimization, Special Topics in Quantitative Analysis , Informatics with Applications in Statistics, Computational Statistics-Simulation Techniques, Scientific Calculation, Applied Matrix Theory.
 - Audiovisual Arts: Introduction, Audiovisual Heritage, Technology of Audiovisual Editing, Experimental Audiovisual Arts, Image Processing, Digital Image Processing, New Media Art, Editing And Direction of Audiovisual Data, 3D Digitization and Visualization, 3D Computer Graphics, 3D Visualisation of Geospatial Data, Computer Animation, Animation, Computer Games & Edutainment, Computer Graphics.
 - Multimedia: New Media Art, Multimedia Applications Programming, Multimedia Technologies, Social Media Identities, Communities and Application Environments, Multimedia.
 - Culture: Digital Culture and Cultural Industries, Cultural Representation, Visual Culture and Digital Communication, Cultural Information Management Technologies, Digital Cultural Heritage.
 - Education & Distance Learning: Applied Teaching, "Cognitive Approaches & Digital Educational Applications", Introduction to Educational Technology, Distance Learning, Language Teaching and New Technologies, Applied teaching in ICT and digital literacy, ICT Applications in Education, Introduction to Web for Education, Pedagogical uses of the Cinema- Reportage, Applications In Education, Applied ICT Didactics, Distance Learning and E-Learning: Socio-Economic and Cultural Dimensions, Introduction to the Educational Applications of Information And Communication Technology, ICT Applications in Education, Digital Technologies in Education, Informatics, New Technologies and Education, Documentaries and the Internet in the educational process - Media Literacy, Design, Development and Assessment of Distance Education Internet Applications (E-Learning), Alternative Forms of Education: Social Dimensions of Mobile Learning, Digital Technologies in Education, Informatics/New Technologies and Education.
 - Intelligence: Artificial Intelligence, Advanced Artificial Intelligence, Robotics, Robotic Control.
 - Virtual Reality: Technological and Didactical Innovations.
 - Maritime Technology & Business Analytics: Demand Analysis, Law of Electronic Transactions, Digital Innovation Entrepreneurship, Business Operations and Information Systems, Programming Principals and Business Problem Solution, Business Systems Simulation, New Technologies in Business, E-business and the Management of the Networked Enterprise, Supply Chain Management I, Supply Chain Administration, e-Services Management, Technological Innovation and Strategy, E-Commerce Technologies and Applications.
 - Software: Software Engineering, Mathematical Software, Financial Software Packages.
 - Humanities: Digital Humanities, Human Computer Interaction, Human – Computer Interaction and Web Applications.
 - Internet: Internet Technologies, Semantic Web, Content Management Systems in the WWW Acoustic Ecology, Internet Protocols and Architectures, Wireless Communications, Web Application Development, Internet of Things, Internet Technology and Programming.

- Mobile: Mobile Wireless Networks Security, Mobile Communication Networks, Design and Development of Mobile Computing Applications, Telecommunications, Modelling and Applications.
- Linguistics: Special Issues of Computational Linguistics or Topics in Natural Language Processing, Computational Linguistics.
- Simulation: Simulation of Communication Systems, Performance Evaluation and Simulation of Computer Systems and Networks.
- Corpora of Data or Corpus Linguistics or Corpus Processing
- Product Analysis and Manufacturing
- Specific skills: Cloud Technologies, Introduction to VLSI, Satellite Communications, Optical Communications, Digital Communications, Microprocessors, Cryptography, Coding Theory, Deep - Machine Learning.
- Engineering: Engineering Drawing, Knowledge Engineering and Knowledge Systems, Decision Analysis and Knowledge Engineering, Mechanics and Materials in Design, Mechatronics.
- Systems: Distributed Systems, System Theory, Decision Support Systems, Modeling, Analysis and Design of Stochastic Systems, Systems Reliability, Interactive Systems Design, Introduction to Systems Design.
- Network Management & Sensor Networks
- Forecasting Techniques
- Advanced User Interfaces
- Digital Governance

General Education Courses

[indicative list from different types of General Education Courses: Basic or Introductory]

Introduction to Computer Science (ΓΕ0201)

Dept. of Shipping, Trade and Transport

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lectures, Computer Laboratory, Study and analysis of bibliography, Project Assignment, Non-directed study	Mennis Evangelos (v.mennis@aegean.gr)	BA	Computer Sciences	1ST Semester	Greek	5

Description

The Course Introduction to Computer Science includes lectures and laboratory exercises. Lectures present a broad picture of the dynamic computer science field. They are accessible to students from

all backgrounds and encourage the development of a practical, realistic understanding of the field. Through lectures, laboratory experience and assignments students learn the computer science fields of the course syllabus. The goal of the course is to teach basic principles and practical issues, while at the same time preparing students to use computers effectively for applications in the scientific discipline that will follow in their studies.

The student would understand major sectors of computer science including:

- Computer systems Architecture
- Binary system
- Computer Operating Systems
- Computer networks
- Basic Algorithms and programming

Through laboratory practice students will be able to (a) to utilize the main operating system functions, (b) to manage and organize their files, (c) to utilize network services, (d) to perform word processing, (e) to use spreadsheets, (δ) to develop simple programs.

Learning targets

The Course Introduction to Computer Science includes lectures and laboratory exercises. Lectures present a broad picture of the dynamic computer science field. They are accessible to students from all backgrounds and encourage the development of a practical, realistic understanding of the field. Through lectures, laboratory experience and assignments students learn the computer science fields of the course syllabus. The goal of the course is to teach basic principles and practical issues, while at the same time preparing students to use computers effectively for applications in the scientific discipline that will follow in their studies. The student would understand major sectors of computer science including:

-
- Computer systems Architecture
 - Binary system
 - Computer Operating Systems
 - Computer networks
 - Basic Algorithms and programming

Through laboratory practice students will be able to

- a) to utilize the main operating system functions,
- b) to manage and organize their files,
- c) to utilize network services,
- d) to perform word processing,
- e) to use spreadsheets,
- f) to develop simple programs.

Assessment

Midterm Exams:

- Written exams 50%,
- Oral evaluation 50%,

- Exercises, Tests

Final Exams: (100%)

Introduction to Informatics (lab) (ΓΕ0102)

Dept. of Financial and Management Engineering

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lab hours, Homework	Melekos Georgios (gmelekos@aegean.gr)	BA	Informati cs	2nd Semester	Greek	4,5

Description

The course is addressed to undergraduate students the basic theory in Informatics.

Learning targets

- Specifically: Programming using C: Control Structures, Iteration Structures
- Informatics theory: Memory Management, Central Processing Unit, Networks, Software
- Boolean algebra: Functions, Circuits Hecadecimal, Octal, Binary, Decimal Numbers conversion

Assessment

- Written exams,
- Program evaluation in the laboratory,
- Homework evaluation at the e-class interface,
- Oral examinations

Computer Programming (410Y)

Dept. of Environment

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lectures, Laboratory practice, Laboratory assignment, Study	Theodorou Konstantinos (ktheo@aegean.gr), Andreou Antonis (andreou@aegean.gr)	BA	Programming	2nd Semester	Greek	6

Learning targets

On satisfying the requirements of this course, students will have the knowledge and skills to:

1. Knowledge: Identify data types and data bases. Data mining and analysis. Basic concepts, syntax and control structure in programming with the use of R.
2. Skills: Write code for problem solving. Input data in the R-environment and produce numerical and graphical results.
3. Capability development: combine data bases and computer programming to analyse questions related to environmental sciences.

Assessment

- Partial written exams: 30%
- Laboratory assignments: 20%
- Final exams: 50%

General Competences

Search for, analysis and synthesis of data and information, with the use of the necessary technology. Adapting to new situations Working independently.

Operating Systems (321-4104)

Dept. of Information and Communication Systems Engineering (ICSD)

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
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UAEGEAN	Lectures, Laboratory Exercises, Personal study	Maliatsos Konstantinos (k maliat@aegean. gr)	BA	Operat ing Syste ms	4th Semester	Greek	5
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Learning targets

It is the intent of this course that students will:

- understand the modern computer systems' complexity and the usefulness of operating systems.
- know the most important resource-utilization issues arising in a computer system.
- learn the most popular solutions adopted by modern operating systems.
- be able to describe the basic principles used in the design of modern operating systems.

In particular, the students will:

1. be able to analyze the tradeoffs inherent in operating system design.
2. be able to distinguish different styles of operating system design.
3. understand the main principles and techniques used to implement processes and threads as well as the different algorithms for process scheduling.
4. understand the main mechanisms used for inter-process communication.
5. be able to contrast kernel and user mode in an operating system.
6. be able to explain memory hierarchy and cost-performance tradeoffs.
7. be able to give the rationale for virtual memory abstractions in operating systems.
8. have an understanding of disk organization and file system structure.
9. be able to describe how computing resources are used by application software and managed by system software.
10. understand the internal structure of an operating system and be able to write programs using system calls.
11. understand the major mechanisms of current general-purpose operating systems exemplified by Linux.
12. are capable of basic system-oriented programming and providing simple extensions to an operating system.

Assessment

Lab exercises, written examination.

Introduction to the Educational Applications of Information and Communication Technology (YE003)

Dept. of Pre-School Education Sciences and Educational Design

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lectures laboratory sessions weekly for software skills developme nt Study and analysis of bibliograph y Students project	Dimitrakopoulou Aggeliki (adimitr@aegean.gr)	BA		3rd Semester	Greek	6

Learning targets

Students are expected to be able to:

- Indicate the main historical milestones of the development of educational technologies and the emergence of the scientific field of ICT in education
- Enumerate the types of educational applications of ICT
- Describe the relationship of learning theories to the types and applications of ICT
- Get familiar with good practices of ICT integration in teaching and learning
- Develop ability to design learning activities to integrate and utilize ICT to improve learning
- Know what provides the Greek education system for ICT in general and preschool education specifically
- learn about international standards and research findings
- Reflect on possible future impact of ICT in education

General Competences

Search for, analysis and synthesis of data and information, with the use of the necessary technology
 Adapting to new situations
 Decision-making
 Working independently
 Team work
 Working in an interdisciplinary environment
 Showing social, professional and ethical responsibility and sensitivity to gender issues
 Criticism and self-criticism
 Production of free, creative and inductive thinking

Assessment

The assessment for the course accounts the following components of the students'

achievements portfolio:

- Individual reflections (writing essays on key concepts) (20%)
- Final written exams (70%)
- Presentation of the collaborative projects (20%)
- Thorough and active participation (10%)

The assessment language is Greek. The assessment procedure may adapt year by year

Introduction to Computer Aided Design (CAGD), (2404)*

Dept. of Product & Systems Design Engineering

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lectures, Laboratory Hours	Kyratzi Sofia mailto: (skiratzi@aegean.gr), Koutkalaki Zoe (zoikout@syros.aegean.gr), Bailas Konstantinos (kbail@aegean.gr), Politopoulos Nikolaos (npol@syros.aegean.gr)	BA	Design CAGD	3rd Semester	Greek	6

Description

This course deals with technological and theoretical aspects of Computer-Aided Design (CAD) and the application of them in product design and system development. It includes theoretical lectures (3h/week) and laboratory lectures (2h/week).

Learning targets

Theoretical lectures aim at:

- Learning the mathematical / geometrical models that form the basis of modern CAD systems.
- The understanding of how geometrical/mathematical models apply to the computer - aided design process.

- A deep learning of CAD theoretical aspects, in order for the student to be able to solve design problems on the basis of any modern CAD system.

The aims of laboratory lectures are, through laboratory tutorials, the students to:

- Learn basic methodologies for the geometric modeling of 2D and 3D models and to understand the currently developed tools for the design and modification of solid models.
- Practically understand the application of the mathematical models in every day computer aided design systems.

Introduction to Information and Communication Technologies (ΥΓ0005)

Dept. of Primary Education

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lectures, Self-paced study, Hands-on-training Activities, Project, Exams preparation	Fokides Manos (fokides@rhodes.aegean.gr), Kostas Apostolos (apkostas@aegean.gr)	BA		1st Semester	Greek	6

Learning targets

After the successful completion of the course, students will be able:

Cognitive level

- To recognize basic terms and concepts about ICT.
- To describe the basic architecture of computers.
- To describe various aspects of Information Society concept.
- To recognize various software.
- To explain the most important functions of OS and desktop applications.
- To recognize multimedia types.
- To recognize basic functionalities of the Internet.

Skills level

- To use the most important settings of Windows OS.
- To use basic tools of Microsoft Office.

- To use Internet.

Competences level

- To better organize their everyday work, study and communication in the academic context, using ICT.

Applied Linear Algebra I (331-1172)

Dept. of Statistics and Actuarial Financial Mathematics

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lectures, Tutorials, Independent study	Tachtsis Eleftherios (ltah@aegean.gr), Mamzeridou Eftychia (emam@aegean.gr)	BA	Algebra	1st Semester	Greek, English (for Erasmus Students)	8

Learning targets

Students who have successfully completed the course will have:

- Achieved the required theoretical background and the ability to apply the suitable methods for problem solving
- Achieved the ability to use the techniques of Linear Algebra in: solving linear systems of equations, calculating the inverse matrix, calculating determinants, finding eigenvalues, eigenvectors, minimum polynomial etc

General Competences

- Production of free, creative and inductive thinking
- Working independently Team work Decision-making
- Search for, analysis and synthesis of data and information, with the use of the necessary technology (Matlab)
- Working in an interdisciplinary environment
- All above are aligned to Level 6 of European Qualification Framework

Assessment



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Student evaluation is done in Greek through a written examination which includes short-answers questions and problem solving. For students with disabilities, evaluation takes place via oral exams

Cloud Technologies (321-11002)

Dept. of Information and Communication Systems Engineering (ICSD)

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lectures, Laboratory Exercises, Personal study	Kritikos Kiriakos (kkritikos@aegean.gr)	BA		8th Semester	Greek, English (for Erasmus Students)	5

Description

The course is a basic introduction to the concepts of cloud computing and resource virtualization and services virtualization. This course aims to introduce students to the basic concepts of cloud computing, connecting the concept of service offered by their respective necessary resources and requirements for the effective management of s. It also refers to introductory concepts in infrastructure management and access technology methodologies, so that the student has a comprehensive understanding of processes and methodologies in cloud computing. In this sense the lesson exploits knowledge and is the basis on which specific methodologies and techniques for the creation and management of virtual services. Finally, the aim of the course is to understand from the students the importance of the management of virtual services in the modern economy and the transformation of the cloud computing into a distinct scientific field / occupation

Learning targets

Upon successful completion of this course the student / her will be able to:

- Understanding has the key and critical aspects of cloud computing, connecting it with broader economic and operational objectives and principles of the service lifecycle.
- Has knowledge of the tools and techniques of virtualization Mr. century that are used to ensure the successful completion of a year the services and resources taking into account the budget,
- It is able to distinguish the main roles in a real or a case study of a cloud computing project and to assess the role of the stakeholders in the implementation of the project.
- It uses cloud computing methodologies to identify key elements such as critical infrastructures, interfaces, dependencies, and a realistic or implementation.
- Analyzes and calculates the basic costs of the service and the connection with the timing.

- Collaborate with its fellow students to create and present a project in a computational cloud service case study that includes the organization, allocation of key tasks, architectural design and implementation of the service (Environmental Analysis - Communications, Objectives, Work Structure Analysis, Chronoprogramming, and Budget)

Assessment

Semester project and oral examination

Design, Development and Assessment of Distance Education Internet Applications (E-Learning) (p. 363) (YEE016)

Dept. of Pre-School Education Sciences and Educational Design

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	<ul style="list-style-type: none"> - Lectures - Tutorial on applications design - Study and analysis of bibliography - Design and implementation of the educational software for the students projects 	Giorgos Fesakis (gfesakis@rhodes.aegean.gr)	BA		6th and 8th semester	Greek	6

Description

The course aims to familiarize students with educational applications of internet in order to consider them in their educational design toolbox. The applications include simple communication services (e.g. forum, chat, audio-videoconference etc), web 2.0 services (e.g. wiki, blog, YouTube, Ning etc), Learning Management Systems (e.g. e-class, Moodle, webct etc) and real time interaction 3D virtual environments and online games. Students get familiarized with internet services, learn and try educational applications and designs, develop learning content according to international standards (e.g SCORM etc) and finally study how to exploit all the previous in educational design.

The typical thematical sequence of the course is:

- Introduction to the course - familiarization of the students with organization, procedures, LMS, etc, inquiring prior knowledge and expectations
- presentation of internet educational applications and services
- familiarization to internet educational applications and services
- critical review of educational projects and interventions using internet
- design and development of learning content for the internet
- design and development of internet based learning activities and educational projects
- Collaborative projects presentation

Learning targets

Students are expected to:

- get familiar with educational applications of simple internet based communication using tools like: forum, chat, audio-video conferencing, e-mail etc
- get familiar with educational applications of social software and web 2.0 services like: wiki, blog, social networking etc as well as real time interactive 3D virtual environments and games
- get familiar with Learning Management Systems like e-class, moodle, webct etc
- learn to design and develop learning content for LMS according to international standards (e.g. SCORM) using authoring tools
- be able to design and propose integrated educational interventions that exploit internet
- get a first contact with the relevant research body

General Competences

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Adapting to new situations
- Decision-making
- Working independently
- Team work
- Project planning and management
- Showing social, professional and ethical responsibility and sensitivity to gender issues
- Criticism and self-criticism
- Production of free, creative and inductive thinking

Assessment

The assessment for the course accounts the following components of the students' achievements portfolio:



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- Individual reflection assignments (edit of reflection texts for basic concepts) (20%),
- Collaborative learning project (50%)
- Presentation of the collaborative project (20%)
- Thorough and active participation (10%)

The assessment language is Greek. The assessment procedure may adapt year by year.

Distance Learning and E-Learning: Socio-Economic and Cultural Dimensions (p. 236) (EPEΔ017)

Dept. of Pre-School Education Sciences and Educational Design

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	- Lectures - Study and analysis of bibliography - Project essay writing	Tapsis Nikolaos (tapsis@rhodes.aegean.gr)	BA		2nd Semester	Greek	6

Description

The aim of the course is to familiarize students with quality research, as well as to develop academic writing skills and design of educational research with qualitative methods. It seeks to link theoretical tools to research practice and to highlight the importance of designing and implementing educational research.

The objectives of the course are the students to:

1. Understand the basic principles of qualitative research in education.
2. Understand ethical issues that arise when designing and implementing a research project.
3. acquire the knowledge and skills required to design a scientific research (focus on a research topic, setting of research questions, methodology, presentation of results and drawing of valid conclusions)
4. implement some specific qualitative methods, using the appropriate tools, in order to study elearning and lifelong learning problems.
5. present a research idea and outline the methodology for its design and implementation
6. develop critical view on research results and conclusions.

The lesson is developed in the following sections:

1. The nature of educational qualitative research - ontological, epistemological, evaluative, and methodological assumptions.
2. The field of e-learning and lifelong learning.
3. Ethics issues in educational research.
4. Planning educational research and method selection.
5. Literature review and research questions.
6. Sampling, validity and reliability in qualitative research.
7. Interview.
8. Observation.
9. Qualitative Data Analysis. Coding.
10. Qualitative Data Analysis Software.
11. Presentation of results and research report.
12. Criteria of evaluation in qualitative research.
13. Public presentation of the research projects and class dialogue.

Learning targets

With the completion of the teaching and learning activities of the course, the students are expected to have the following knowledge, skills and abilities:

- Specialized knowledge in the implementation of qualitative research methods in education and to develop critical awareness of e-Learning and lifelong learning.
- Problem-solving skills required in educational research to develop new knowledge and processes.
- Abilities demonstrating scientific integrity and firm commitment to the formation of educational research processes.

The expected learning outcomes for the students belong to the follow axes:

Knowledge

- Know how to design educational qualitative research through an interview
- Know the appropriate methods of sampling
- Know the techniques of quality analysis of data
- Know how scientific results are presented

Comprehension

- Understand the theoretical and practical issues of educational research
- Choose the appropriate qualitative method regarding the purpose and research questions of the research.

- Choose the appropriate communication method for collecting qualitative data

Application

- Apply the appropriate techniques for validation and reliability
- Handle primary and secondary research data of a qualitative research
- Use applications for the collection, processing and analysis of research material.

Analysis

- Analyze the general objectives of an empirical educational research on specific objectives
- Analyze qualitative data, such as interviewing texts and non-verbal communication.

Synthesis

- Attempt interdisciplinary approach for the interpretation of educational phenomena.
- Link research questions to the design of appropriate research tools
- Present the results of a qualitative research in Education

Evaluation

- Compare and evaluate qualitative research studies in the field of e-learning, as well as their results.
- Evaluate the processing of the research results based on the theoretical framework

General Competences

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Working in an interdisciplinary environment
- Drawing up a research plan and research proposals
- Respect for difference and multiculturalism
- Showing social, professional and ethical responsibility and sensitivity to gender issues
- Production of free, creative and inductive thinking

Assessment

The evaluation will be continuous, and will be based on the research project process, which will start at the beginning of the course and will be completed at the end of the course.

The participation in the course is monitored.

The research project is undertaken after the subject has been approved by the instructor. The subject of the project will be on the course content. Indicative titles are given, but students are free to propose their own subjects.

During the lessons each part of the project is discussed, as well as the final report of the research project and the public presentation of the results of the research.

- Participation in the course contributes 40% to the final grade.
- The final report of the project is submitted to the LMS platform and contributes 50% to the final grade.
- The public presentation of the results of the research in the classroom is mandatory and contributes 10% to the final grade.

Note: In the exam periods (regular or not) following the semester in which the lesson was offered, only those who meet the prerequisite of attending the course during a semester can participate.

Introduction to Web for Education (p. 220) (ΕΓ0042)

Dept. of Primary Education

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	- Lectures - Study and analysis of Bibliography, Tutorials - Project, essay writing	Kostas Apostolos (apkostas@aegean.gr)	BA		Spring	Greek	4

Learning targets

After the successful completion of the course, students will be able:

Knowledge Level

- To describe the characteristics of Internet and Web.
- To recognize various Web 2.0 tools and services.
- To select web-based software, according to its functionality for educational purposes.
- To describe the main functionalities of synchronous and asynchronous e-learning systems.
- To recognize various aspects of MOOCs and m-learning.

Skills Level

- To create content and activities using Web tools.
- To design web pages and blogs.
- To use Google Services.

Competences Level

- To use the Web effectively for educational purposes.

General Competences

The course aim to:

- Synthesis of data and information, with the use of the necessary technology
- Working independently.
- Working in an interdisciplinary environment

1. Introduction to Internet and Web
2. Educational affordances of Web 2.0
3. Google Services
4. Google Docs
5. Google Forms
6. YouTube and various screen casting tools
7. Google Sites
8. Blogger
9. Evaluation criteria for education web sites and resources
10. E-Learning platforms
11. Educational portals, repositories, and the Greek School Network
12. MOOCs
13. m-learning

Assessment

Project-based essay with public presentation.

Informatics with Applications in Statistics (331-1108)

Dept. of Statistics and Actuarial Financial Mathematics

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	- Lectures, - Laboratory practice, - Independent study	Mamzeridou Eftychia (emam@aegean.gr)	BA		1ST Semester	Greek	8

Description

Fundamental principles of Windows OS. Introduction to spreadsheets (Libre / Open Office). Descriptive Statistics (Basic concepts of statistical data, presentation of statistical data, Sorting and classification of statistical data, Basic statistical measures of data tendency) using appropriate software (Libre / Open Office).

Learning targets

The aim of this course is to familiarize students with the use of computers, as well as with the capabilities they provide (through appropriate software) to solve problems from statistics and probabilities. The knowledge gained by the students from this course is necessary for the study of other curriculum subjects such as Databases, Financial Mathematics I, Computational Statistics – Simulation Methods, Introduction to Administrative Bank Risks, Statistical Packages and Data Analysis. The students will learn basic concepts of statistical data, presentation of statistical data, sorting and classification of statistical data and basic statistical measures of data tendency by using the software Libre / Open Office.

General Competences

1. Search for, analysis and synthesis of data and information, with the use of the necessary technology
2. Decision-making
3. Working independently
4. Team work

Assessment

Student evaluation is done in Greek through a written examination which includes problem.

For students with disabilities, evaluation takes place via oral exams.

Specialized Education Courses

Artificial Intelligence (321-3604)

Dept. of Information and Communication Systems Engineering (ICSD)

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lectures, Laboratory Hours, Personal study	Stamatatos Efsthios (stamatatos@aegean.gr)	BA	Artificial Intelligence	6th Semester	Greek, English (for Erasmus students)	5

Learning targets

On completion of this module, students are expected to be able:

- To have the knowledge of defining an intelligent agent and familiarity with the types of intelligent agents.
- To have the ability to represent a problem so that it can be solved via state space search. Familiarity with blind search algorithms. Familiarity with heuristic search algorithms.
- To possess the Understanding of the properties of heuristic functions. Familiarity with local search algorithms.
- To have the ability to represent a problem as a constraint satisfaction problem. Familiarity with algorithms of solving constraint satisfaction problems.
- To possess knowledge of planning methods and understanding the algorithm of partial-order planning. Familiarity with the basic principles and algorithms of machine learning.
- To have the capacity of developing programs that use artificial intelligence algorithms.

Assessment

During the teaching hours of the course, teaching material is projected to highlight the characteristics of the examined methods and systems. Appropriate methods and algorithms are demonstrated. The active participation of students with critical questions and small-group discussions is strongly encouraged. Exercises are solved.

Studio 7A - Interactive Systems Design* (7313)

Dept. of Product & Systems Design Engineering

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Laboratory Hours	Modestos Stavrakis (modestos@aegean.gr), Koutsabasis Panayiotis (kgp@aegean.gr), Vosinakis Spyros (spyrosv@aegean.gr)	BA	Design	9th Semester	Greek	8

Description

Studio Courses offer students specialization in applied skills and also familiarise them with the theoretical, methodological and technological tools required in contemporary design of products and systems.

- The first set of Studio modules offers students up-to-date knowledge on Drawing, Color and Synthesis. Students are encouraged to employ their creativity to produce original ideas, expressing themselves in aesthetically acceptable ways. These modules aim at familiarizing students with visual perception and aesthetics.
- The second set of Studio courses focuses on applied skills in product design.
- The third set of Studio courses offers students more specialized applied skills, including detail “product” design, in an effort to approximate the end-user experience. A high degree of familiarisation with all design aspects and skills is required.

This course integrates student skills and knowledge from previous courses of the first stream of studies (Interactive Systems Design). The aim is engage students in dealing with an authentic project that involves external stakeholders, academics, customers, domain experts, end-users, etc. The course runs with a suggested thematic area of application of interactive systems such as ‘smart home’, ‘cultural heritage’, teaching and learning’ etc. Students work in groups to:

- Creatively apply methods and tools for empirical research, design and evaluation.
- Design, experiment and prototype with interactive technologies.
- Iterative develop solutions and evaluate them with end-users and other stakeholders.

Learning targets

The intended learning objectives of the course can be summarized as follows:

- Application of design methods related to an authentic context.

The main learning objective is to familiarize students with the application of design methods, techniques and tools, such as e.g. interviews, observation techniques, ethnographic studies. The aim is to train students on the basis of authentic problems in existing design frameworks. Students will gain experience in:

- conducting on-site observation of user activity in actual contexts where the users perform,
- designing the research protocol,
- identifying appropriate sources of information
- measuring user and context related data
- using and managing recording media,
- understanding requirements.

An important learning outcome is to understand the modeling and interpretation of research findings, while at the same time knowledge about the technologies involved is also considered important and is acquired through technological tests. Finally, students will gain experience in analyzing case studies and designing functional prototypes of applications in different fields such as entertainment, education, culture, etc.

- Prototyping of systems and applications with state-of-the-art interactive technologies

The main learning objectives during the prototyping phase are:

- students should be able to transform design requirements and specifications into creative design ideas and prototypes,
- students should be able to understand and use mainstream software tools,
- students should be able to implement software platforms and hardware technologies required for interaction programming,
- students should be able to develop and program simple prototypes of interactive systems, and finally
- students should be able to develop interactive prototypes using different technological tools and platforms such as Unity, Arduino, Raspberry Pi, Android Studio, etc.
- User centered evaluation of prototypes

The main learning objectives in the process of evaluating interactive prototypes are as follows.

- The students should be able to organise, plan and apply modern usability evaluation methodologies,
- The students should be able to compose and organize an evaluation plan, based on a specific design problem,
- The students should be able to select methods and tools according to the design objectives of the prototype.

An important learning objective is to master the organization and analysis of the collected evaluation data, as well as to compile a coherent and structured evaluation report that will thoroughly describe the problems of usability and user experience. Finally, the students should be able to propose design solutions for improving the overall design of the prototype in an iterative fashion.

Mixed and Virtual Reality Games / Applications Development I

Dept. of Cultural Technology and Communication

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lecture, Laboratory Hours	Kasapakis, Vlasios (v.kasapakis@aegean.gr)	MSC	Mixed and Virtual Reality	1st Semester	Greek	10

Description

This course aims into introducing students to the basics of interactive applications/games design, along with the use of 3D Graphics for real-time interactive applications/games development. Moreover, the course focuses on Mixed and Virtual Reality applications/games design, and it provides a hands-on experience on their development

Animation (8205)

Dept. of Product & Systems Design Engineering

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	Lectures, Laboratory sessions, Personal study	Kyriakoulakos Panagiotis (pank@aegean.gr)	BA	Animation	8th Semester	Greek	4

Description

The course is dedicated to traditional animation techniques (drawing, plasticine, stop-motion, etc). Understanding how to render rhythmic actions for narrative purposes is the main objective of the course. Both character and object animations approaches are taught in the classroom, based on traditional Disney animation principles. During compulsory laboratory sessions, students are invited to create their own concepts, storyboards, walking cycle exercises, and final short films.

Learning targets

At the end of the semester, the student will be able to prepare a complete animation proposal and understand all major animation principles in theory and in practice.

Content

The course schedule includes 2h of theory and 1h of laboratory sessions per week during the whole semester (13 weeks). Both theoretical lectures and laboratory sessions may include audiovisual material for better understanding of a given subject. The laboratory sessions include always practice with traditional animation techniques composed later in computer workstations equipped with the appropriate software.

Cryptography (311-2003)

Dept. of Mathematics

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	- Lectures - Independent study	Nastou Panagiotis (pnastou@aegean.gr)	BA		6th Semester	Greek	6

Description

- Algorithms and Cryptography. An introduction to the Complexity Theory: fast tractable problems and the class P, hard computational problems and the class NP, NP-complete problems and the question if P is not equal NP.
- Security Assessment Models. Design Secure Cryptographic Systems. Cryptography and Cryptanalysis.
- Information Theory: Probabilities, Entropy and Mutual Information.
- Information Leakage by cipher. Perfect Secrecy. Redundancy of a Language. Key Equivocation.

- Counting average number of spurious keys. Unicity Distance. Stream and block Cryptographic algorithms.
- Cryptographic Operations. Transposition Cipher. Shift Cipher, and the Caesar Cipher. Substitution cipher. Security of the Mono-alphabetic Substitution. Affine Cipher and its Cryptanalysis.
- Vigenere Cipher and its Cryptanalysis: Kassiski test and Index of Coincidence. One time pad. Vernam Cipher. Hill Cipher and its Cryptanalysis. Cryptographic product.
- Shared Key Ciphers. Substitution Permutation Networks (SPN). Sbox Design. Principles of Diffusion and confusion. Block Ciphers.
- Feistel Networks and its security. DES and AES structure presentation. Block Ciphers Interconnection. Triple encryption and the meet-in-the-middle attack. Key Scheduling Algorithms. Linear and Differential Cryptanalysis.
- Public Key Cryptography Schemes. RSA, public and private key pair generation, Square and Multiply Algorithm. Factoring Algorithms: Pollard-($p-1$), Pollard- p , Dixon's Random Squares Algorithm, the Decryption Exponent Algorithm.
- ElGamal Cryptographic System on Z_p . Discrete Logarithm Problem and Algorithms for solving it: BabyStep-Giant-Step and Pollard Rho Algorithm.
- ElGamal Cryptographic System on Elliptic Curves. Elliptic Curve generation algorithms, basic Algebraic operations and their implementation algorithms. The Discrete Logarithm Problem on Elliptic Curves.
- The concept and the use of Digital Signature Schemes.

Learning targets

In this course the students are introduced to the basic complexity theory and how computational difficulty in solving problems can be exploited to build secure cryptographic protocols. The lectures are, then, focused on some elementary cryptographic schemes like Caesar's cipher, general substitution ciphers, polyalphabetic ciphers and how they can be broken efficiently. Then the students are introduced to Shannon's cryptographic principles of confusion and diffusion and how they lead to the Feistel-based block ciphers. Then, as case studies, the block ciphers DES, CAST-128 and AES are presented along with analysis of their security properties. In the middle of the course, the students are introduced to public key cryptography and the RSA, ElGamal scheme and the foundations of Elliptic Curve Cryptography as well as the state of the art in the cryptanalysis of RSA and ECC.

The aim of this course is mainly to introduce the students into the basic concepts of cryptography and cryptanalysis. At the end of the course, they could develop and analyse certain cryptographic systems and they could be ready to use and modify certain cryptanalysis techniques.

General Competences

- Working independently
- Team work
- Working in an interdisciplinary environment
- Working in an international environment

Assessment

Student's evaluation is done in Greek through a written examination which includes short-answers questions and problem solving.

For students with disabilities, evaluation takes place via oral exams.

GIS (GEO 200)

Dept. of Geography

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	<ul style="list-style-type: none"> - Lecture - Laboratory practice - Project - Non-supervised study - Performance evaluation/Exams 	Kalabokidis Kostas (kalabokidis@aegean.gr)	BA		3rd Semester	Greek	5

Description

This main aim of the course is to familiarise students with basic spatial data analysis.

The first section revises basic GIS concepts regarding the type of data used, data input, data editing, data conversions (Vector to Raster and Raster to Vector), data filtering using logical queries, data coding, coordinates transformation and projection systems.

In the second section students become familiar with data analysis and how can they use a GIS to deal with real world problems. Specifically a land suitability analysis is carried out based on Boolean overlay techniques (such as buffer, clip, union) and map algebra. Working with 2.5D surface data (spatial interpolation) and learning the basics of GPS technology are also part of the course.

Learning targets

The main aim of this course is to introduce students to basic concepts of GIS and their utility to geographical studies.

The successful completion of the course will allow the students to:

- Gain an understanding on basic issues in GIS
- Acquire expertise in the use of open source GIS software.
- Take the right decisions regarding the management and analysis of spatial data

General Competences

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Project planning and management
- Production of free, creative and inductive thinking

Assessment

- Normal exam period (February): 70% written exams, and 30% two (2) nonelective computer based exercises.
- Resits (June/September): 100% written exams (or 70% in case the students lost more than two (2) computer labs).
- Computer practicals are required. Only two (2) justified absences are allowed.
- Evaluation rules apply to all students without exemptions.

Robotic Control (321-7754)

Dept. of Information and Communication Systems Engineering (ICSD)

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	- Lectures, - Laboratory Exercises - Personal study - Exercise Presentation	Kavallieratou Ergina (kavallieratou@aegean.gr)	BA		7th Semester	Greek, English (for Erasmus students)	5

Description

Basic components of robotic systems, coordinate systems, homogeneous transformations, kinematic for arm, inverse kinematics, dynamic arm, Jacobians, speeds and static forces, track design, actuators, sensors, vision, robotic programming. Understanding robotic control issues. Design and development of robotic systems.

Robotic Applications - Space Placement - Robot Moving

Learning targets

At the end of the course, students should be able

- to describe and analyze rigid motion,
- to give the kinematic with the resulting equations,
- to solve simple problems of inverse kinematics,
- to choose sensors for specific applications and
- to solve design problems

Assessment

- Student presentations 20%
- research 30%
- Individual work writing 30%
- Laboratory group Project 20%

Academic Development Courses

Instructions for Online Distance Learning

(For more information, see: *Academic Staff Development Offers*)

University	Teaching format	Teacher/ Faculty	Education level	Field	Duration	Language	ECTS
UAEGEAN	e-training			Research / Career development Didactics, IT Skills	Permanently offered	Greek	

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