ΟΙΚΟΝΟΜΙΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ

ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS

SCHOOL OF BUSINESS

DEPARTMENT OF MANAGEMENT SCIENCE AND TECHNOLOGY

https://www.dept.aueb.gr/dmst

ΣΧΟΛΗ ΔΙΟΙΚΗΣΗΣ ΕΠΙΧΕΙΡΗΣΕΩΝ

SCHOOL OF BUSINESS

ΤΜΗΜΑ ΔΙΟΙΚΗΤΙΚΗΣ ΕΠΙΣΤΗΜΗΣ & ΤΕΧΝΟΛΟΓΙΑΣ

DEPARTMENT OF MANAGEMENT SCIENCE & TECHNOLOGY

UNDERGRADUATE STUDIES

GUIDE

2025-2026

CONTENTS

1 INFORMATION ABOUT THE INSTITUTION

1.1 Name, address and contact details

ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS
Address: Patission 76, 104 34, Athens, Greece
Telephone Centre: +30-210-8203911
Website: https://www.aueb.gr
e-mail: webmaster@aueb.gr
Facebook: https://www.facebook.com/auebgreece
Twitter: https://twitter.com/aueb

1.2 Dates of academic year/semesters and/or academic periods

FALL SEMESTER
Monday, October 6, 2025- Friday, January 16, 2026
Christmas holidays: Wednesday, December 24, 2025-Tuesday, January 6, 2026
Winter Semester Course Examination Period: Monday, January 19, 2026-Friday, February 13, 2026

SPRING SEMESTER
Monday, February 16, 2026 - Friday, May 29, 2026
Easter Holidays: Monday, April 6, 2026 - Friday, April 17, 2026
Spring Semester Course Examination Period: Tuesday, June 2, 2026 - Friday, June 26, 2026

Official Holidays (based on academic calendar)
Tuesday, October 28, 2025 (Celebration of the 28th of October 1940)
Monday, November 17, 2025 (November 17th uprising anniversary)
Tuesday, January 6, 2026 (Epiphany)
Friday, January 30, 2026 (Three Holy Hierarchs)
Monday, March 18, 2024 (Orthodox Ash Monday)
Wednesday, March 25, 2026 (Independence Day Celebration)
Friday, May 1, 2026 (May Day)
Monday, June 1, 2026 (Holy Spirit Monday, i.e., Orthodox Pentecost Monday)

1.3 Academic Authorities and Services

ACADEMIC AUTHORITIES AND SERVICES
The Rectorial Authorities of the University consist of the Rector and the Vice-Rectors as follows:

Rector
Professor Vasilios Vasdekis

Vice Rector for Academic Affairs and Personnel
Professor Leonidas Doukakis

Vice Rector for Financial Planning and Infrastructure
Assoc. Professor Eleanna Galanaki

Vice Rector for Research and Lifelong Learning
Professor Georgia Siougle

Vice Rector for International Cooperation and Growth
Professor Nancy Pouloudi

SCHOOL OF BUSINESS
Dean: Professor Angeliki Poulymenakou

DEPARTMENT OF MANAGEMENT SCIENCE AND TECHNOLOGY
Department Chair Professor Ioannis Nikolaou

CONTACT INFORMATION
Address: Patission 76, 104 34, Athens, Greece
Secretariat phone: +30-210-8203129, 139, 408, 110
Tel. E-mail Secretariat: dmst@aueb.gr
Website: https://www.dept.aueb.gr/dmst

ORGANISATIONAL STRUCTURE OF THE UNIVERSITY
The organization and operation of the University is governed by the Greek legislation. The Athens University of Economics and Business is under the supervision of the Ministry of Education, Religious Affairs and Sports. Under the current legislation, the governing structure of AUEB includes:
a) the Governing Council,
b) the Rectorate Authorities
c) the Senate,
d) the Executive Director

ACADEMIC STRUCTURE OF THE UNIVERSITY
The Athens University of Economics and Business is structured in terms of Schools and Departments.

Each School comprises a minimum of two (2) Departments, covers a range of related scientific areas and ensures an interdisciplinary approach to teaching and research among its Departments. The School is responsible for the supervision and coordination of the operation of the Departments and the educational and research work produced by them, in accordance with the Internal Operating Regulations.

Each school's administration is conducted by a) the Dean's Council and b) the Dean.

A Department is the fundamental academic unit of the University and aims to promote a specific field of science or technology through education and research. The Department is composed of the Faculty Members, the members of the Special Technical Laboratory Staff, the members of the Laboratory Teaching Staff and the Administrative Personnel.

The authorities of the Department are: a) the Assembly, c) the Chair and d) the Vice Chairman.

The Athens University of Economics and Business consists of three Schools and eight Departments:

1. **SCHOOL OF ECONOMICS**
   - Department of International & European Economic Studies
   - Department of Economics
2. **SCHOOL OF BUSINESS ADMINISTRATION:**
   - Department of Management Science and Technology
   - Department of Business Administration
   - Department of Accounting and Finance
   - Department of Marketing and Communication

3. **SCHOOL OF INFORMATION & TECHNOLOGY**:
   - Department of Informatics
   - Department of Statistics

Also, since September 2025, the foreign-language undergraduate program "Bachelor in International Business and Technology (IBT)" has been offered by AUEB, which has been developed with the participation of all eight Departments of the University.

THE STAFF OF THE UNIVERSITY
The staff of the University consists of the following categories:

- **TEACHING STAFF:**
- Faculty members: teaching and research staff
- Emeritus Professors
- Visiting Professors
- Laboratory Teaching Staff
- Specialist Technical Laboratory Staff
- Scientific Assistants
- University Fellows
- Scientific Staff
- Contractual lecturers
- Lecturers on secondment

- **ADMINISTRATIVE STAFF**

THE SERVICES
The Athens University of Economics and Business provides both administrative and other services (board, accommodation, library, sports, etc.) in order to serve its students and the rest of its staff. More information about the organization and operation of the services provided by the institution can be found on the main website (http://www.aueb.gr).

1.4 General description of the University

The Athens University of Economics and Business (AUEB), as a Higher Educational Institution, is a legal entity under public law and is supervised by the Ministry of Education, Religious Affairs and Sports.

The AUEB is, in order of seniority, the third Higher Education Institution in the country and the first in the field of Economics and Business Administration. Along the way, the disciplines of Computer Science and Statistics were added. From the year of its foundation in 1920 until today, it has a rich history of important scientific achievements, which characterize the modern present and prescribe excellent prospects for the future.

As a center of excellence in academic research and teaching, the University is rated as one of the leading universities in our country and one of the best internationally in the subjects it treats. Its reputation reflects, on the one hand, the high level of its scientific staff, the quality of its research and teaching work and its modern curricula, and on the other hand, the high level of scientific training of its graduates, which allows them to operate professionally successfully both in Greece and abroad.

List of courses offered leading to an academic degree

Detailed information on the study programmes is provided in the study guides and on the websites of the departments.

Admission/registration procedures
Admission to the department is by means of a national examination. The registration of the successful candidates of the Panhellenic Examinations, in the Schools and Departments of Higher Education and, by extension, in the AUEB, is carried out every September through the system of compulsory online registration, according to the instructions of the Ministry of Education, Religious Affairs and Sports.

1.5 Basic Regulations of the Institution
(including academic recognition procedures)

The basic regulations of the institution include, but are not limited to:
- Internal Regulation
- Regulation of Postgraduate and Doctoral Studies Programmes
- Internal Audit Unit Regulations
- Model Internal Regulations for University Laboratories
- Internal Regulations of the center for Training and Lifelong Learning and the Organisational Structure of its Services
- Rules of Procedure of the Teaching and Learning Support Centre.
- Regulations on the University's Internship
- Regulations for the Operation of the Technology and Innovation Transfer Unit
- Regulations of the Summer Study Programmes

1.6 ECTS Coordinator of the University

The ECTS Coordinator of the University is the President of the Quality Assurance Unit, who ensures the compliance of the University with the principles and rules of the European Credit Transfer and Accumulation System, supervises their observance and implementation and is responsible for the full recognition and transfer of credits.

2 INFORMATION ABOUT THE DEPARTMENT

2.1 Mission and Objectives

Changes in the structure and nature of business operations have made technology a particularly important factor in organizational transformation of businesses. Thus, the development, exploitation and management of new technologies is inextricably linked to management science. Internal integration and inter-business interconnection of an organization's activities make each activity have a very significant impact on the activities of a whole chain of actions. At the same time, competition pushes businesses into strategic plans with high investment in technology. These plans, because they are radical, require substantial capital and contain a high risk. Both of these features to be effectively addressed require high-level human resources. At the same time, the Greek economy is currently looking for the organizational and managerial modernization of its businesses and organizations, which will enable them to improve their competitiveness index in today's internationalized reality.

A key prerequisite for achieving this goal is the preparation of qualified executives capable of making effective decisions for the benefit of business and the economy, using the modern environment of decision-making, technology and applications. Executives who will be able to work in the e-business environment under configuration.

The curriculum is designed to prepare high-level executives for businesses and organizations capable of successfully coping with the complexity of today's and future technological, economic and social challenges.

Upon successful completion of studies, the graduate will have developed problem-solving skills:

- combine knowledge from the scientific areas of management science, management, and information technology and systems and critically evaluate its application in practice
- demonstrate understanding of the managerial, technological, economic and social challenges that organizations face in the global context and deal with their complexity.
- use analytical methods and techniques to make effective operational and strategic decisions
- identify, formulate and solve management problems while applying critical thinking
- demonstrate the necessary leadership, managerial and entrepreneurial skills to play a key role in the companies and organizations of the future
- establish an innovative and entrepreneurial approach to identify business opportunities and deal with contemporary entrepreneurial challenges

From the above it follows that the differentiation and the originality of the studies program of the Department are the completion of the modern quantitative and technological background with the developed administrative knowledge and abilities offered to the students. This allows graduates of the Department to be particularly competitive in the labor market, since they will be able to effectively address multidimensional managerial and business issues in the rapidly changing, highly competitive and developed technological environment.

The Department, regarding entrance exams, belongs to the 4th scientific field (Economics and Informatics Sciences) and (from 2025) to the 2nd scientific field (Positive and Technological Sciences).

- Those who wish to study management science emphasizing on new skills where there is a strong element of applying quantitative methods to decision-making, logistics and supply chain, production and services, human resources management, business strategy, entrepreneurship and innovation.
- Those who wish to combine information systems and technologies with an in-depth understanding of the management challenges that emerge from organizations and enterprises and their effects on organizational level.

The Identity of the Department

- The Department is the first in its specialization in Greece combining modern management science with computer and communication technologies and organizational studies.
- The Department accepts approximately 170 new high-level students each year from the 4th scientific field: Economic Sciences and Informatics and (from 2025) the 2nd scientific field: Positive and Technological Sciences.
- The Department has 22 resident faculty members.
- The Department has 1 member of Laboratory Teaching Staff, which performs mainly laboratory-applied teaching work.
- The Department has 3 members of Special Technical Laboratorial Staff, which offer auxiliary teaching, as well as specialized technical laboratory services for the best execution of the educational, research and applied work.
- The scientific staff has a strong presence in academia worldwide, having achieved international recognition, and having taught at leading universities such as Wharton, LSE, LBS, etc.
- The curriculum of the Department is based on a well-organized, technocratic approach. It is internationally oriented (various visiting professors coming to teach every year, collaborations with leading universities are active within its undergraduate, postgraduate and research program).

- The Department focuses on research and development, with more than 25 international research collaboration projects with leading universities and research centers around the world and over 60 doctoral students.
- The Department has an educational laboratory with two (2) rooms with a total of 72 workstations. It also boasts five (5) excellently equipped research laboratories where researchers are currently employed. More precisely the research laboratories of the Department are:|
    - Management Science Laboratory – MSL
    - Laboratory of Electronic Commerce and Electronic Business – ELTRUN
    - Business Analytics Laboratory – BALab
    - Management of formation Systems and Technologies Laboratory – ISTLab
    - Laboratory of Management, Strategy and Entrepreneurship
- The Department runs, independently and in collaboration with other Departments, eight (8) high-level graduate programs which are attended by 250 students. Of these six (6) are full-time and part-time and two (2) only part-time (for working professionals). Specifically, the Postgraduate Programs offered or to which the Department participates are the following:
    - MSc in Management Science and Technology (Full and Part time)
    - MSc in Business Analytics (Full and Part time)
    - Professional Master's Program in Digital Transformation (In collaboration with Eurobank Group, which is the funding entity)
    - Master in Business Administration (MBA) International Program (In collaboration with other Departments, Full and Part time)
    - Executive MBA Program (In collaboration with other Departments, Part time)
    - MSc in Human Resource Management (In collaboration with other Departments, Full and Part time)
    - MSc in Public Policy and Management (Part time)
    - MSc in International Shipping, Finance and Management (In collaboration with other Departments, Full and Part time)
- The Doctoral Program of the Department is one of the largest programs of its kind in Europe. Many of the doctoral students of the Department teach and participate in research projects, outside the Athens University of Economics and Business in Universities such as: Essex University, Ashton Business School, Copenhagen Business School, Bauhaus University of Weimar, University of Cyprus, Ionian University, University of Peloponnese, University of Patras etc. Also, doctoral students of the Department participate in important international conferences, and many have published articles in leading academic journals and have received international awards in their specialized field.
- The high level of studies in the Department is documented by the ability of graduates to pursue postgraduate studies at first line Universities of abroad and by the fact that Department's PhD holders submit publications in important international journals and have already taken up positions within and outside Greece.

2.2 Program of stydies

The Department of Management Science and Technology offers a 4-year undergraduate degree that provides its graduates with the scientific knowledge and business-oriented practice required by contemporary job markets. Obtaining this degree requires the successful completion of thirty-nine (39) academic courses including a compulsory 3-month internship at designated organizations. The categories of courses which are offered by the department are:

Compulsory Courses

The Department's undergraduate degree includes twenty-eight (28) compulsory courses, which introduce students to the key concepts and fundamentals of Management Science and Information Technology. Hence the first five (5) semesters comprise solely of compulsory courses (25 in total), with an additional three (3)

compulsory courses appearing during the sixth (6th), the seventh (7th) and the eighth (8th) semester, respectively.

Concentration fields and Elective Courses

Concentration field and elective courses set the curriculum from the 6th semester to its completion. At the beginning of the 6th semester, students choose the steam they are specializing in, acquiring in this way in-depth knowledge and experience. The Department offers the following concentration fields: "Operations Research and Business Analytics", "Operations and Supply Chain Management", "Software and Data Analysis Technologies", "Information Systems and Electronic Business" and "Strategy, Entrepreneurship and Human Resources". Each concentration field comprises six (6) compulsory courses and five (5) elective courses.

Each student should be successfully enrolled in a set of eleven (11) courses by selecting either (a) a single major concentration field or (b) two concentration fields, one major and one minor. Case (a) implies that the student is examined in six (6) courses of the major concentration field plus five (5) additional courses of his choice from the courses offered by the Department's curriculum. Case (b) implies that the student is examined in six (6) courses of the major concentration field plus three (3) courses of the minor concentration field plus any two (2) courses of his/her choice from the courses offered by the curriculum of the Department.

In this context, and under the supervision of the professors who choose to consult, students choose the courses that cover and serve their academic and professional goals. The specialized knowledge of the 6th and 7th semester is based on the scientific background of the first five semesters and is actively combined with the corresponding 8th Semester's Internship and Thesis, which accompanies it.

Here are all the curriculum courses distributed per semester:

COURSE TITLE	COURSE TYPE
1st Semester (Total: 30 ECTS)	
8101 Mathematics I	C
8103 Introduction to Management	C
8105 Introduction to Computer Science	C
8107 Introduction to Marketing	C
8181 Accounting	C
2nd Semester (Total: 30 ECTS)	
8102 Mathematics II	C
8160 Quantitative Methods in Economics & Business I	C
8106 Programming I (Prerequisite of "Programming II" and "Algorithms and Data Structures")	C
8154 Επιχειρηματικότητα	C
8174 Introduction to Economic Theory	C
8112 Contemporary Issues & Trends in Management & Technology (Elective course only for 1st year students)	E
3rd Semester (Total: 30 ECTS)	
8111 Decision Making	C
8165 Quantitative Methods in Economics & Business II	C
8115 Organizational Behavior and Leadership	C
8117 Database Management Systems (Prerequisite for "Business Intelligence and Data Engineering")	C

8119 Programming II (Requires "Programming I")	C
4th Semester (Total: 30 ECTS)	
8114 Human Resource Management	C
8116 Mathematical Otimization	C
8113 Financial Management	C
8120 Analysis & Design of Information Systems	C
8162 Algorithms and Data Structures (Requires "Programming I")	C
5th Semester (Total: 30 ECTS)	
8121 Project Management	C
8123 Optimization Methods in Management Science	C
8125 Management and Information Technology	C
8127 Work & Organizational Psychology	C
8129 Information Systems Implementation and Architecture	C
6th Semester (Total: 30 ECTS)	
8142 Business Strategy	C
Concentration field I: Operations Research and Business Analytics	
8134 Production & Operations Management	SC
8144 Operations Research and Computational Intelligence	SC
Code 8184 Data Analysis and Machine Learning	SC
Concentration field II: Information Systems and Electronic Business	
8126 Analysis & Modeling of Business Processes and Systems	SC
8146 E-Business Technologies and Applications	SC
8152 Digital Content Management & Human-Computer Interaction	SC
Concentration field III: Strategy, Entrepreneurship and Human Resources	
8136 Talent Management and Technology	SC
8166 Product Design and Development	SC
8180 International Business Management	SC
Concentration field IV: Operations and Supply Chain Management	
8130 Quality Management	SC
8132 Supply Chain Management	SC
8134 Production & Operations Management	SC
Concentration field V: Software and Data Analysis Technologies	
8138 Software Engineering in Practice	SC
8152 Digital Content Management & Human-Computer Interaction	SC
Code 8184 Data Analysis and Machine Learning	SC
Elective Courses	
Courses from any other concentration field	
or/and 8178 Trusted and Secure Software Development	SE
or/and 8140 Final Year Project (spring semester)	SE
7th Semester (Total: 30 ECTS)	
8182 Ethics, Responsibility and Governance	C
Concentration field I: Operations Research and Business Analytics	
8163 Financial Engineering	SC
8167 Stochastic Modeling & Simulation	SC
8143 Combinatorial Optimization	SC
Concentration field II: Information Systems and Electronic Business	
8139 Information Resource Management	SC
8150 Digital Marketing	SC
Concentration field III: Strategy, Entrepreneurship and Human Resources	

8135 Personal and Leadership Skills Development	SC
8169 Advanced Topics in Strategy and Innovation	SC
Concentration field IV: Operations and Supply Chain Management	
8133 Analysis and Planning of Distribution and Transportation Systems	SC
8159 Enterprise Resource Planning Systems	SC
8183 Business Analytics and Personalization Technologies	SC
Concentration field V: Software and Data Analysis Technologies	
8137 Business Intelligence and Data Engineering	SC
8183 Business Analytics and Personalization Technologies	SC
Code 8195 Contemporary Trends in Artificial Intelligence NEW COURSE	SC
Elective Courses	
Courses from any other concentration field	
or/and 8131 Investment Analysis	SE
or/and 8151 E-learning and Knowledge Management	SE
or/and Code 8197 Digital Product and Service Management	SE
or/and 8149 Final Year Project (fall semester)	SE
8th Semester (Total: 30 ECTS)	
8156 Internship - Thesis	C
Concentration field II: Information Systems and Electronic Business	
8164 Digital Innonation and Entrepreneurship	SC
Concentration field III: Strategy, Entrepreneurship and Human Resources	
8164 Digital Innonation and Entrepreneurship	SC
Elective Courses	
8170 Big Data Management Systems	SE

Where no prerequisite courses are mentioned, the curriculum is indicative, but it is recommended to follow the proposed course sequence and distribution per semester. However, due to the specificity of the requirements of Internship and Thesis in the 8th semester, students have the option of attending an additional elective course in the 6th and/or 7th semester.

Distribution of Courses / Credits ECTS per Concentration field

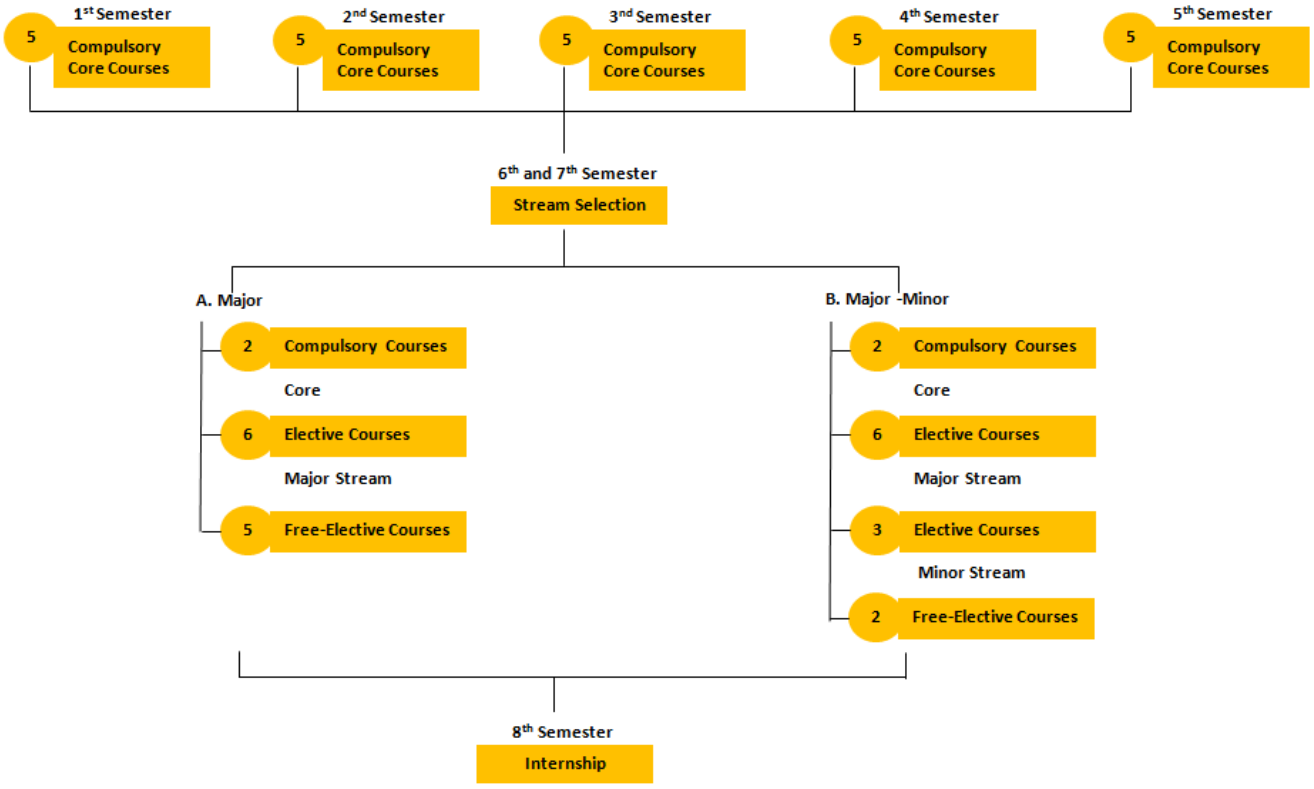
The following table shows the distribution of ECTS credits per concentration field of study, for the 6th, 7 th and 8th semester:

Concentration field	Operations Research and Business Analytics		Information Systems and Electronic Business		Strategy, Entrepreneurship and Human Resources		Operations and Supply Chain Management		Software and Data Analysis Technologies	
6th Semester	**Courses**	**ECTS**	**Courses**	**ECTS**	**Courses**	**ECTS**	**Courses**	**ECTS**	**Courses**	**ECTS**
C	1	6	1	6	1	6	1	6	1	6
SC	3	18	3	18	3	18	3	18	3	18
SE	1	6	1	6	1	6	1	6	1	6
		30		30		30		30		30
7th Semester	**Courses**	**ECTS**	**Courses**	**ECTS**	**Courses**	**ECTS**	**Courses**	**ECTS**	**Courses**	**ECTS**
C	1	6	1	6	1	6	1	6	1	6
SC	3	18	2	12	2	12	3	18	3	18
SE	1	6	2	12	2	12	1	6	1	6
		30		30		30		30		30
8th Semester	**Courses**	**ECTS**	**Courses**	**ECTS**	**Courses**	**ECTS**	**Courses**	**ECTS**	**Courses**	**ECTS**
C	1	12	1	12	1	12	1	12	1	12
SC	-		1	6	1	6	-		-	
SE	3	18	2	12	2	12	3	18	3	18
		30		30		30		30		30

Memorandum:

C = Compulsory (for all concentration fields)
SC = Concentration field Compulsory
SE = Concentration field Elective

2.2.1 Program of stydies structure



2.2.2 Information for the elective courses

Foreign Language

The foreign language course is optional. Students can choose one of the three foreign languages (English, French, German) taught at the University. The foreign language course marking of the first two years (English I, II, III, IV, French I, II, III, IV, German I, II, III and IV) is not taken into account in the calculation of the average of the degree. The foreign language course marking of the third year (English V, VI, French V, VI, German V, VI) is taken into account in calculating the average grade of the degree, but without being taken into account in the required number of courses for the degree.

Contemporary Issues and Trends in Management and Technology

This course is optional. Only students of the first year can select it. It is taught in the 2nd semester of studies. The grade of the course is taken into account in the calculation of the average grade of the degree. However, it is not taken into account in the number of courses required for a degree.

Final Year Project

In the 6th or 7th semester, students are allowed to perform a (mainly research) project under the close supervision of a faculty member of the Department. It is an elective course.

Teacher Education Program

University operates a program in Sciences of Education and Training. This program is one-year (2 semesters) and is addressed to graduate students (7th, 8th semester). The courses are:

- Introduction to Pedagogical Patterns
- General and Progressive Psychology
- Educational evaluation / Educational Assessment

- Teaching Methodology -Teaching Methods in Economics
- Pedagogics and Quality in education
- Organization and Management of Education and Educational Institutions
- Introduction to Teaching Methodology – Specific Curriculum
- Introduction to Information Technology - Pedagogical application in education
- Teaching Practice I
- Teaching Practice II

More information about the program: https://www.dept.aueb.gr/en/tep

2.2.3 Teaching, Course Registration and Reassessment

Course Teaching Duration
Course teaching and examination duration is eight (8) semesters
The courses are taught for thirteen (13) weeks every semester
Each course is taught for four (4) hours per week
Each course has a credit load of six (6) ECTS units and twelve (12) for the Internship

Workshops and Laboratories
In most courses of the curriculum, teaching is complemented by specialized tutorials, where exercises are solved and student questions are discussed. In the Educational Laboratory of Management Science and Technology, specialized labs are also held in courses utilizing information infrastructures.

Course Registration
Course registration takes place twice during the academic year (following a relevant announcement by the University, with an exclusive submission deadline): a) October (winter semester courses) and b) February (spring semester courses). Course registration is compulsory in order to: i) take part in the examinations of the courses and ii) obtain the textbooks of the courses they have chosen.

It is noted that in September students can only be examined in the courses they have already chosen in the winter and spring registration of the current academic year.

Course Reassessment
Students have the right to be re-examined in four (4) courses throughout their studies. Those students, who have completed graduation requirements and apply for oath taking, automatically lose the right to reassessment.

2.2.4 Exams, Marking and Graduation

Exams
At the end of each semester, students take written exams for each course. There are three examination periods:
- January (written exams for fall semester courses)
- June (written exams for spring semester courses)
- September (written exams for both fall and spring semester courses)

Graduation Requirements
- Registration and monitoring for at least 8 semesters
- Follow-up and successful examination in 39 courses
- Successful completion of Internship and Thesis in the 8th semester

Grading Scheme
The grade for each course is expressed in the number range from zero (0) to ten (10), including half points. The passing grade is five (5). The Rating Scale for a degree, which is calculated based on the average of all courses, is as follows:
10 - 8, 51 Excellent
8, 50 - 6, 51 Very Good
6, 50 – 5 Good

2.2.5 Projects Awards

The Department has established awards for the best student assignments related to curriculum subjects. Thus, at the beginning of each year, prizes are awarded to groups of students whose work was distinguished in the previous academic year.

2.2.6 Concentration fields

The five available concentration fields that the studies program offers are as follows:
- Concentration field I: Operations Research and Business Analytics
- Concentration field II: Information Systems and Electronic Business
- Concentration field III: Strategy, Entrepreneurship and Human Resources
- Concentration field IV: Operations and Supply Chain Management
- Concentration field V: Software and Data Analysis Technologies

Concentration field I: **Operations Research and Business Analytics**
Operational Research, as a traditional approach to decision-making solutions in conjunction with Business Analytics as a modern and expanded view, is an evolving scientific area that is experiencing a re-acne in the last decade, precisely because of the increased size and complexity of modern decision-making problems.

This concentration field provides both methods of data analysis and methods for mathematical modeling and computational solution of all applications, which are analyzed within the Department's curriculum (Logistics, Production, Services, Finance, Human Resources Management, Project Planning). The emphasis in this concentration field is more on the methods and mathematical or algorithmic foundations of applications and computational problems.

Therefore, the directional design aims at a horizontal (rather than vertical) approach of all applications, in order for the graduate to be flexible and competitive in the labor market. This means that the graduate will be able to work equally successfully as an analyst within a specialized business (in the fields of production and services, logistics and transport, finance, project management, etc.) and as a business consultant within an advisory company, which serves other organizations.

At the same time, the horizontal approach of direction leads to the construction of a solid background in analytical and computational decision-making methods combined with data analysis methods. This background can support multiple subjects at postgraduate level (from Computer Science to Business Administration and, of course, Business Analytics). The content of the concentration field courses includes:

- Deepening in Operations Research and Decision Making methodologies
- The examination of fundamental and specialized Production and Operations Management issues
- The thorough examination of Financial engineering methods
- The design of Combination Optimization algorithms and methods
- The Modeling of stochastic decision-making problems through stochastic processes or simulation

- Deepening in Business Analytics issues, particularly in personalization technologies as well as data analysis in the supply chain.
- The set of courses includes modeling and analysis-solving applications and case studies, as well as introducing relevant software or programming algorithms.

Concentration field II: Information Systems and Electronic Business
Objectives of the Information Systems and Electronic Business concentration field are:

- To provide through the courses offered specialized knowledge both in theory and (more importantly) in practical application, for the main categories of information technologies applied in the business and organizational environment, in all phases of their development and administration, with an emphasis on e-business
- To capitalize and specialize the basic computer literacy and computer skills acquired by the student in the first years of his studies through the compulsory computer courses he has attended
- To create the required background for modern and up-to-date knowledge and skills of IT development:
    - Apps and software re-use,
    - Business Analytics,
    - User experience (UX),
    - Business Process Modelling and ERP,
    - Information Resource Management
- The practical application of the above to the creation of innovative business models / services / businesses in a real environment with emphasis on the exploitation of new technologies

Graduates of the concentration field can work:
- As specialists in e-commerce, digital marketing, web applications / services, etc.
- As executives in positions of analysts, programmers or project managers of information systems
- As specialists in new specialties related to: social networks, mobile application development, e-learning, internet businesses, knowledge management, digital media and digital marketing
- As executives (and founders) of innovative new businesses that use new technologies with emphasis on the Internet, mobile devices and other digital media

Concentration field III: Strategy, Entrepreneurship and Human Resources
The aim of the concentration field is to provide students who choose it, the knowledge and skills required for the management of enterprises and organizations in the context of complex processes involved in the business environment, taking into account the changing labor relations and the important role of human resources.

The Strategy, Entrepreneurship and Human Resources concentration field is designed to:
- to provide, through its courses, knowledge both in theory and practice, on issues of human resource and leadership management, as well as on issues of innovation, strategy and implementation of strategic changes in the context of the internationalized economy
- to shape thinking and to develop the administrative, organizational and personal skills required by corporate executives and organizations to cope with modern challenges
- to help students who choose it to understand the interaction of business strategy with effective human resource management for the benefit of the business
- to assist graduates interested in entrepreneurship in understanding the functions and the role of human resources in a small business or a start-up
- to explore the potential of innovation and strategy in dynamic new entrepreneurship
- and help through the practical application of the above to the creation of innovative business models / services / businesses in a real environment with emphasis on the exploitation of new technologies

Graduates of this concentration field can be employed as:

- Executives for every business and organization
- Executives in human resources
- Executives in consultancy
- Consultants - external business partners
- Businessmen

Concentration field IV: Operations and Supply Chain Management

Competitiveness constitutes a key success factor for any contemporary business activity. However, sustaining and enhancing business competitiveness involves producing and offering the right product, at the right time, the right place and at the right price and conditions. Operations and Supply Chain Management contributes substantially to this goal through designing and managing the integrated process of manufacturing and delivering products and/or services to markets. In particular, Operations Management aims at designing and managing the operations for producing products and/or services in an efficient and cost-effective way. Supply Chain Management aims at designing and managing the flow of materials, products, and information from suppliers to end-customers in order to offer the products and/or services at the desired time and place and at the minimum logistics cost. Integrated management of business operations and supply chain activities is envisaged in all industries.

In this context, the Operations & Supply Chain Management concentration field (unique in undergraduate studies offered by Greek Universities) covers the following areas

- Design, planning and control of business operations for manufacturing products or producing services.
- Designing and Coordination of the relationships of the companies and organizations participating in a supply chain
- Planning and control of Logistics Systems, including procurement, warehousing, transportation, and distribution.

The objective of this concentration field is to provide students of the Department of Management Science and Technology with the skills to design, manage, and assess the entire spectrum of business operations of a company taking into account their interrelationships. The knowledge and skills offered by this concentration field will enable the student to pursue the following job opportunities:

- Executive or Analyst in a Product or Service Design/Manufacturing department of any type of company
- Executive or Analyst in a Supply Chain Management or Logistics department of any of company
- Executive or Analyst in 3PL, 4PL or a private or public Transport Company

Concentration field V: Software and Data Analysis Technologies

The accumulation of large volumes of data has brought dramatic changes to both day-to-day and business. Using advanced analysis techniques, business intelligence, and artificial intelligence, we can predict behaviors, discern trends, strategize, and study systems with unprecedented precision. At the same time, Software Technology gives us the tools with which we can work effectively to make such analyzes. It also gives us the skills we can create complete services not only for data analysis but also for the implementation of innovative ideas and initiatives.

This concentration field gives students the necessary knowledge to be able on the one hand to design and implement programs and digital services, on the one hand to collect, process, and analyze large amounts of data. Direction courses therefore move on two axes:

- Programming technologies and tools, code development methods, advanced implementation techniques.
- Data processing and organization techniques, artificial intelligence applications, business analytics, and data science.

- Graduates of the department who will choose the concentration field of Software Technologies and Data Analysis have brilliant prospective developments:
- In the academic field, they can continue their studies at postgraduate level either in computer programs or in programs of analytical, data science, and artificial intelligence.
- In the professional field, the labor market in both IT, data analysis is robust, and the demand for graduates with specialized knowledge has been and remains very strong.

Finally, the concentration field provides an additional asset: students will have a deeper and more meaningful understanding of the technologies that have already greatly influenced and will continue to change our lives in the coming decades. In the context of the increasing automation of work that until recently was considered beyond the reach of the computer, such knowledge is the best guarantee we can have for the future, both as workers and as citizens.

2.2.7 Internship and Thesis

It is a compulsory course for all students. To participate in the Internship, students must have a minimal level of formal knowledge. Internship has a duration of three months and is implemented in a company or organization. The final grade is based on the final report and the progress during the Internship.

Internship is an obligation of the students during the **8th semester of studies of the Department** and within its framework the students are employed in a real business environment by utilizing and completing the knowledge they have acquired The fundamental goal of the internship is to gain work experience so that students have an important asset for their future professional career. Familiarizing them with actual operating parameters of a modern enterprise, passing from theory to practice, and forming a relationship with a company that can potentially become a future employer are key components of the course.

Students are employed in Departments / Operations (e.g. Marketing, Finance, Production, Personnel) of the business offering to host them. During the internship, they are familiar with the functions, practices and administrative systems applied by the company and participate in them, under the guidance of an executive for that purpose. At the same time, a Professor of the Department supervises their employment.
Alternatively, the students are employed in a specific and project-specific project that has been agreed with the internship coordinators and falls within the Department's disciplines. There is also the opportunity for students to participate in the development of a new entrepreneurial activity that interests a company.

In both cases, internship is accompanied by a targeted Bachelor Thesis, which is linked to the content of the internship itself and at the same time extends to wider academic and research topics, to a certain extent through an extensive bibliographic research.

The following tables summarize some statistics regarding the content of the internship in the Department of Management Science and Technology.

Part of the company in which internship is being developed
Marketing
Information Technology
Human Resources
Financial Management
Sales
General Management
Logistics
Quality Management
Project Management

Customer Support
Other

Indicative Main tasks within the Internship
Development of IT applications
Analysis and modeling of business processes and systems
Completion of processes and systems
Study of evaluation and quality systems
Market and competition research
Development and import of products and services
Economic and technical studies
Development of models and algorithms
Development of business plans

Main activity of the company in which the internship is being developed
Information Technology and Telecommunications
Commerce
Financial Institutions
Consulting Companies
Services
Retailing
Industry
Food/Drinks
Public Organizations
Other

2.2.8 Career Prospects

Today, and even more in the future, companies and organizations are facing new challenges that cannot be tackled by executives of traditional specializations. It takes executives who, in addition to their specialization in Business Administration (Finance, Marketing, Accounting, Sales, Human Resources Management, etc.) will be able to manage and use the combination of Management Science with modern technological (Information Technology, Telecommunications, Quantitative Methods) so that they can understand, design and implement integrated business functions, processes and systems as well as business activities.
Graduates of the Department due to their integrated technological and managerial background are competitive as executives and consultants in:

All the traditional Business Management specializations in the new e-business environment, innovation, rapid organizational developments and business uncertainty such as:

- Production & Operations Management
- Human Resource Management
- Marketing and Sales
- Accounting and Finance, etc.

Cutting-edge specializations such as:

- Supply Chain Management and Services
- Logistics and Transportation
- Analysis and Design of Information Systems
- Information and Telecommunication Resource and Systems Management,

- Quantitative Methods in Business Administration (Operational Research)
- Financial Engineering
- Project Management
- Analysis and Modeling of Business Processes and Systems
- Electronic Commerce and Digital Marketing
- Internet and New Digital Distribution and Sales Channels
- Software Engineering
- Enterprise Resource Planning Systems
- Databases
- Knowledge and Learning Management
- Innovation and Entrepreneurship Management
- Work and Organizational Psychology
- Business Strategy

Many of our graduates **are already working** in well-known Greek and multinational companies such as: Piraeus Bank, Kraft, CGU Insurance, EFG Eurobank, Bank of Cyprus, TITAN, Johnson & Johnson, Germanos, Athens International Airport, Schneider Electric, Siemens, TOYOTA, Citibank, Info-Quest, HSBC, Piraeus Bank, PLAISIO, PwC, EY, Deloitte, KPMG, Accenture, HOL, Intersys, Nestle, Mails AE, National Bank of Greece, etc.
Every year, more than 20 graduates of the Department continue their studies in postgraduate programs (MSc, MBA, MPhil) at leading Universities in Greece and abroad (e.g. Harvard, Columbia, UCLA, Michigan, Duke, Cambridge, Oxford, of Economics, Bocconi etc) on issues such as:

- Business Administration
- Supply Chain Management and Services
- Logistics and Transportation
- Operational Research
- Business Analytics
- Accounting and Finance
- Computer Science
- E-business and Digital Media
- Human Resource Management
- Marketing
- Economics

2.3 Faculty and staff of Department

2.3.1 Faculty Members

- Associate Professor **Konstantinos Androutsopoulos (Analysis & Programming of Distribution and Transport Systems):** Degree in Mathematics, National & Kapodistrian University of Athens, M.Sc. in Statistics and Operations Research, University of Essex., Ph.D. in Management Science and Technology, AUEB.
- Professor **Irini Voudouris** (**Business Strategy and Entrepreneurship**): Diploma in Electrical Engineering, NTUA, B.Sc. Ecole Natinale Superieure des Telecommunications (ENST), TELECOM - Paris ", Diplome d' Etudes Approfondies (D.E.A.), Universite Paris X / H.E.C / E.S.S.E.C, Ph.D. Universite Paris X - Nanterre.
- Professor **Adam Vrechopoulos (Digital Media and Personalized Services):** B.Sc. in Applied Informatics, AUEB, M.B.A. Athens Laboratory of Business Administration, Ph.D. in Electronic Retailing & Marketing, Brunel University (UK).
- Assistant Professor **Ioanna Deligianni (Business Administration):** B.Sc. in Chemical Engineering, NTUA., M.Sc. in Business Administration, AUEB, Ph.D. in Management Science and Technology, AUEB.
- Professor **George Doukidis (E-Business):** B.Sc. in Mathematics, Aristotle University of Thessaloniki, M.Sc. in Operations Research and Ph.D. in Simulation / Artificial Intelligence, London School of Economics and Political Science.

- Associate Professor **Emmanouil Zachariadis (Management Science - Quantitative Methods):** Diploma in Chemical Engineering, NTUA, M.Sc. in Computing Science, Imperial College London, Ph.D. School of Chemical Engineering, NTUA.
- Assistant Professor **Dimitris Zissis** (Management Science): BSc in Mathematics, NKUA, MSc in Statistics and Operations Research, NKUA, PhD in Management Science, AUEB.
- Professor **George Ioannou (Production and Operations Management):** Diploma in Mechanical Engineering, NTUA, M.Sc./D.I.C. in Industrial Robotics and Manufacturing Automation, Imperial College of Science, Technology and Medicine, Ph.D. in Mechanical Engineering, University of Maryland.
- Assistant Professor **Foteini Kravariti** (Human Resource Management): B.Sc. in Business Administration, University of Piraeus, M.Sc. in Human Resource Management (International Development), University of Manchester, Ph.D. in Development, Policy and Management, University of Manchester, FHEA, Academic MCIPD
- Professor **Emmanouil Kritikos (Operational Research and Information Systems):** Degree in Mathematics, National & Kapodistrian University of Athens, M.Sc. in Information Technology and Operations Research, National & Kapodistrian University of Athens, Ph.D. in Computer Science and Management, AUEB.
- Professor **George Lekakos (Business Utilization of Digital Content):** B.Sc. in Mathematics, Aristotle University of Thessaloniki, M.Sc. in Advanced Methods in Computer Science, University of London, Ph.D. in Management Science and Technology, AUEB.
- Professor **Panagiotis Louridas (Software Technology and Algorithmic Applications)**: B.Sc. in Informatics, National & Kapodistrian University of Athens., M.Sc. by Research, University of Manchester, Ph.D. in Software Engineering, University of Manchester.
- Professor **Ioannis Mourtos (Business Research Mathematics):** Diploma in Computer Engineering & Informatics, University of Patras, M.Sc. and Ph.D. in Operations Research, London School of Economics and Political Science.
- Professor **Ioannis Nikolaou (Organisational Behaviour and Human Resource Management):** B.Sc. in Psychology, University of Crete, M.Sc. and Ph.D. in Organizational Psychology, University of Manchester, Institute of Science & Technology (UMIST).
- Professor **Athanasia** (**Nancy) Pouloudi (Management of Information Systems):** Degree in Informatics, AUEB, Postgraduate Certificate in Teaching and Learning in Higher Education, Brunel University, M.Sc. and Ph.D. in Information Systems, London School of Economics and Political Science..
- Professor **Angeliki Poulymenakou (Management of Information Systems**): Degree in Mathematics, National & Kapodistrian University of Athens, M.Sc. and Ph.D. in Information Systems, London School of Economics and Political Science.
- Professor **Katerina Pramatari (Information Systems with emphasis on Supply Chain):** B.Sc. in Informatics, M.Sc. in Information Systems and Ph.D. in Management Science and Technology, AUEB.
- Professor **Apostolos Refenes (Management Science with emphasis on Financial Engineering):** B.Sc. in Mathematics and Computing, Polytechnic of North London, Ph.D. in Computing, University of Reading.
- Professor **Klas Eric Soderquist (Innovation and Knowledge Management):** B.Sc. and M.Sc. in Industrial Engineering, Royal Institute of Technology, Stockholm, Ph.D. in Business Administration, Brunel University.
- Professor **Diomidis Spinellis (Software Technology):** M.Eng. in Software Engineering and Ph.D. in Computer Science (1994) of Imperial College of Science, Technology and Medicine.
- Professor **Christos Tarantilis (Quantitative Methods for Production and Services Management)**: B.Sc. in Mathematics, University of Patras, M.Sc. in Operations Research, London School of Economics and Political Science, Ph.D. in Operational Research and Logistics NTUA.
- Professor **Damianos Chatziantoniou (Decision Support with Analytical Data Processing):** B.Sc. in Applied Mathematics, National & Kapodistrian University of Athens, M.Sc. in Computer Science, New York University, Ph.D. in Computer Science, Columbia University.

Professors Emeriti

- Professor **Spyridon Lioukas**: Bachelor of Engineering, NTUA, M.Sc. in Operational Research, NTUA, Ph.D. London Business School.
- Professor **Panagiotis Miliotis:** Bachelor of Mechanical and Electrical Engineer, NTUA, M.Sc. and Ph.D. in Operations Research, London School of Economics and Political Science.

Resigned Faculty Members

- Professor **Gregory Prastacos:** B.Sc. and M.Sc. in Computer Science, Ph.D. in Operations Research of Columbia University.
- Professor **Konstantinos Zografos**: Bachelor of Engineering, University of Patras, M.Sc. and Ph.D. in Operations Research (Transportation and Logistics), University of Connecticut, USA.

Departed Emeritus Faculty Member

- Professor **Andreas Kintis** (former rector of AUEB): Bachelor in Economics, AUEB, M.Sc. in Economics, University of Wisconsin, Ph.D. in Econometrics, University of Manchester.

The following table presents the Head and Vice Chairman of the Department, from its foundation until today:

	1999-2001	2001-2003	2003-2005	2005-2006	2006-2008	2008-2010
Head	P. Miliotis	G. Doukidis	G. Doukidis	S. Lioukas	K. Zografos	K. Zografos
Vice Chairman	G. Doukidis	A. Refenes	D. Bourantas	G. Doukidis	G. Doukidis	D. Spinellis
	2010-2012	**2012-2014**	**2014-2016**	**2016-2017**	**2017-2020**	**2020-2022**
Head	G. Ioannou	Ch. Tarantilis	A. Pouloudi	G. Giaglis	D. Spinellis	A. Pouloudi
Vice Chairman	D. Bourantas	A. Pouloudi	K. Pramatari	I. Voudouris	I. Nikolaou	E. Kritikos
	2022-2024					
Head	I. Voudouris					
Vice Chairman	E. Kritikos					

2.3.2 Laboratory Teaching Staff

- **Christos Lazaris:** B.Sc. in Physics, National & Kapodistrian University of Athens., M.Sc. in E-Commerce (MBA equivalent), Athens University of Economics & Business, Ph.D. in Management Science and Technology, Athens University of Economics & Business.

2.3.3 Special Technical Laboratorial Staff

- **Stavros Grigorakakis:** B.Sc. and M.Sc. in Physics, National & Kapodistrian University of Athens.
- **Sofoklis Stouraitis:** B.Sc. in Mathematics, Direction of Computational Mathematics and Informatics, University of Patras, M.Sc. in Information Systems, Department of Informatics, Athens University of Economics & Business.
- **Vasiliki Tagalaki:** B.Sc. in Mathematics, University of the Aegean, M.Sc. in Information Systems, Department of Informatics, Athens University of Economics & Business.

2.3.4 Administrative Staff

Secretariat of the Department

- **Chrysoula Sakellariou** (Secretariat): Bachelor of the Faculty of Primary Education, National and Kapodistrian University of Athens, MSc "Stress Science and Health Promotion", Medical School of the National and Kapodistrian University of Athens.

- **Victoria Filippopoulou** (Vice Secretariat): : Bachelor of the Faculty of English Language & Literature, School of Philosophy, National and Kapodistrian University of Athens
- **Angelos Vezyrellis**: Bachelor of the Department of Business Administration, Aegean University, M.Sc. in Human Resource Management (HRM), Athens University of Economics and Business.
- **Kelly Vourloumi**: Bachelor of the Faculty of Management and Economics, Department of Tourism Management, Athens University of Applied Sciences, Technological Educational Institute of Athens, M.Sc. in Public Economics and Policy, Faculty of Management and Economics, Department of Accounting and Finance, Technological Educational Institute of Piraeus.

Public Relations

- **Maria Kontouli:** Bachelor of the Department of Communication and Mass Media, National and Kapodistrian University of Athens, M.Sc. in European Studies for Business Executives and Organizations, Athens University of Economics and Business.

2.4 Evaluation Procedures of the Department

In the last few weeks of each semester, the students, aiming at the continuous improvement of the curricula and the teaching work of the Department, carry out a course / student assessment. The evaluation is carried out by completing a specific questionnaire prepared centrally by the institution for this purpose.

The results are discussed and analyzed in the General Assembly with the aim of overall upgrading of the educational process by all the teachers and problem solving where necessary. Based on the results of the evaluations, the General Assembly decides and performs each year the "Title of High Didactic Performance" (a title that is very important to the Universities of North America and Europe).

Apart from the above, an annual evaluation of the faculty members of the Department is under way. The annual progress reports of the faculty members and the evaluation process take place every autumn (coordinated by the Vice Chair) to properly planning for next year. The desired criteria of the Department for the various grades (quantitative or qualitative) are known to the stakeholders and refer to five categories: a) Publications in International Scientific Journals, b) Research, c) Quality and Participation in Education, d) International Scientific Activity, and e) Administrative Work in the University and Professional initiatives.

The Department has also submitted two internal evaluation reports to date, one in February 2009 and one in September 2013.

In addition, it should be noted that the Department was evaluated in November 2013 according to the standards of the Hellenic Quality Assurance and Accreditation Agency (HQA). Distinguished professors attended the External evaluation from leading international universities (Aston University, UK, London, UK, California State University, USA, Frederick University, Cyprus, and Cardiff University, UK).

Finally, The Undergraduate Study Program of the Department of Management Science and Technology received, by the Hellenic Quality Assurance and Accreditation Agency, a four-year certification (valid from 17/07/2019 to 16/07/2023). The certification was granted, as after the completion of the prescribed procedures, it was proven that the Undergraduate Study Program of the Department fully complies with the model quality standards of the Hellenic Quality Assurance and Accreditation Agency and the Quality Assurance Standards of the European Higher Education Area (ESG).

Postgraduate Programs Evaluation

MSc in Management Science and Technology program ranked 12th in the field of "E-Business and Digital Marketing in Western Europe", according to the international ranking body Eduniversal Best Masters Rankings for 2024.

MSc in Business Analytics was the only Greek Master's Program to be ranked among the top similar Master's Programs in the "Business Analytics" category for 2024, with a global ranking of 101+, according to the QS Global MBA & Business Masters Rankings. It was also ranked 5th worldwide, in the "Business Intelligence & Strategy" category, according to the authoritative international ranking body Eduniversal Best Masters Rankings for 2024.

MSc in Human Resource Management was ranked 17th in Western Europe in the "Human Resources Management" category, according to the authoritative international evaluation body Eduniversal Best Masters Rankings for 2024.

MBA International, according to the annual ranking of Universities by the international rating agency Quacquarelli Symonds (QS), was ranked 33rd in Europe for 2023 in QS Global MBA Ranking and 43rd globally for 2024 among 73 top MBA and Masters Programs in the QS International Trade Rankings. It also ranked 6th in the Eduniversal Best Masters Rankings for 2024 in the "MBA Part Time" category.

MBA International was certified in 2023 for one more time by the International Association of MBAs (AMBA). The AMBA organization certifies MBA, DBA and MBM programs worldwide, taking into account specific criteria, in order to provide the programs that certify international credibility. It is worth noting that this certification is enjoyed by only 2% of the Schools of Management in over 75 countries worldwide.

Executive MBA was re-accredited by the Association of MBAs (AMBA), the international independent authority for postgraduate training in business administration. After an extensive evaluation, the Executive MBA received the certification as confirmation that the teaching, the curriculum, the quality of the teaching and research staff and the other services offered to the students of the program meet the highest criteria set by the AMBA. The assessment also took into account the views of students, graduates and employers.

Executive MBA ranked 26th in Europe, according to the international Eduniversal Masters Rankings for 2024.

MSc in Public Policy and Management ranked 7th in Europe according to the international ranking body Eduniversal Masters Rankings for 2024 in the field of Public Administration / Management.

3 BRIEF DESCRIPTION OF THE COURSES

1st SEMESTER

Mathematics I (8101)

Course Description

The course material can be organized in four basic parts:
I. Introduction – Basic concepts: Sets, Functions, Series, Limits, Elementary analytical geometry.
II. Differential Calculus of Univariate and Multivariate Functions
III. Integral Calculus
IV. Applications of Mathematics in Economics and Management Science

Learning Outcomes

Upon completion of the course, students will be able to:

- choose the proper Mathematical Methods solving the mathematical problems depending on the nature of the problems, the available data and the existing technology.
- describe the usage of Calculus in other disciplines of Management and Economics.
- consider and control the results using Mathematical Methods and identify possible errors
- apply the Calculus solutions to other disciplines of Management and Economics
- produce solutions in real-world applications
- evaluate solutions in a range of Management and Economics applications.
- develop in a systematic manner alternatives to realistic problems

Bibliography

- L. Goldstein, D. Lay, D. Schneider, N. Asmar, 2020, Διαφορικός και Ολοκληρωτικός Λογισμός, Θεωρία και Εφαρμογές, Pearson Education, Inc.
- M. Abell and J. Braselton, 2021, Mathematica by Example, Academic Press
- M. Bittinger and D. Ellenbogen, 2012, Calculus and its Applications, Pearson Education, Inc.
- Chiang and K. Wainwright, 2005, Fundamental Methods of Mathematical Economics, McGraw-Hill International Editions
- L. Hoffmann and G. Bradley, 2010, Calculus for Business, Economies, and the Social and Life Sciences, McGraw-Hill Companies, Inc.
- M. Lial, T. Hungerford, and J. Holcomb, B. Mullins, 2021, Mathematics with Applications in the Management, Natural, and Social Sciences", Pearson Education, Inc.

Introduction to Management (8103)

Course Description

Management as a field of scientific inquiry, as well as everyday practice, is particularly important because it is critically associated with the efficient and effective functioning of firms and organizations. As such, students that take this course will be able to develop an in-depth understanding of fundamental Management principles and functions.

The course aims to offer a general introduction into the language, concepts and tools of Management. The topics covered include:

- Fundamental functions of management and managers' roles.
- The evolution of management theory
- The organizational and global environment; ethics and social responsibility
- Managers as decision makers and strategists

- Managing organizational structure; organizational control and culture
- Human resources management and leadership

Learning Outcomes

Students are expected to develop skills that are related to: a) the analysis of internal and external environment, (b) strategic planning and decision making, (c) organisational design and architecture, and (d) the analysis of issues related to ethics to social responsibility.

Bibliography

- "Δ. Μπουραντάς: «Μάνατζμεντ», Εκδόσεις Μπένου
- J. R. Schermerhorn: «Εισαγωγή στο Management» Εκδόσεις Πασχαλίδης
- “Contemporary Management”, G. Jones, J. George & C. Hill: MacGraw Hill"

Introduction to Computer Science (8105)

Course Description

The course contents are:

- IT Principles
- Computer Architecture
- Software
- Algorithms
- Procedural Programming Principles
- Programming language Java
- Operating Systems
- Computer Networks
- Artificial Intelligence
- Security

Learning Outcomes

The course aims to introduce students to the basic concepts and elements of computer and telecommunications systems and the principles of computer programming and the Internet. The course investigates the concepts of Information Systems, the evolution of Computing Systems, their structure and architecture. The course introduces students to number systems, and logic elements (such as gates and circuits). Also, special emphasis is given on Software issues. This includes both software as a system and software as an application. Moreover, aligned with the proliferation of telecommunications and networks, the course introduces students to data communication and computer networks. Finally, the course includes an introduction to computer programming principles with the instruction of the Java programming language and basic procedural programming structures (such as sequence, selection, iteration).

The learning outcomes of the course relating to the three axes (knowledge, Skills, Competences) are as follows:

- Learning Outcomes relevant to Knowledge: Upon successful completion of the course, students will be able to: Understand the basic principles of computer science. Become familiar with basic concepts and principles of computing, information systems/management, computer systems, software, programming, application software and networking/telecommunications/ security. Be familiar with basic programming skills in the Java programming language. Identify and solve computational problems/ binary algebra/ basic logical circuits
- Learning Outcomes relevant to Skills: Upon successful completion of the course, students will be able to: Execute Java code for basic applications and introductory algorithms, perform Binary Algebra operations and design basic logic circuits

- Learning Outcomes relevant to Competences: Upon successful completion of the course, students will be able to: Interpret/analyze the basic parts of computer systems/information systems and their development process. Know the building blocks of application software and systems.

Bibliography

- ΑΡΧΕΣ ΛΕΙΤΟΥΡΓΙΑΣ ΚΑΙ ΠΡΟΓΡΑΜΜΑΤΙΣΜΟΥ Η/Υ, ΓΕΩΡΓΙΟΣ ΓΙΑΓΛΗΣ
- ΕΙΣΑΓΩΓΗ ΣΤΗΝ ΠΛΗΡΟΦΟΡΙΚΗ ΚΑΙ ΤΙΣ ΕΦΑΡΜΟΓΕΣ ΤΗΣ
- ΕΙΣΑΓΩΓΗ ΣΤΙΣ ΤΕΧΝΟΛΟΓΙΕΣ ΤΗΣ ΠΛΗΡΟΦΟΡΙΚΗΣ ΚΑΙ ΤΩΝ ΕΠΙΚΟΙΝΩΝΙΩΝ, ΙΩΑΝΝΗΣ ΤΣΑΚΝΑΚΗΣ, ΑΝΔΡΕΑΣ ΦΛΩΡΟΣ

Introduction to Marketing (8107)

Course Description

The course includes the following sections:

- Course Description
- Introductory Concepts and Definitions
- The Marketing Environment
- Buyers' Behavior
- Marketing Research
- Marketing Segmentation, Targeting and Positioning
- Product
- Distribution
- Integrated Marketing Communications
- Pricing
- Introduction to Special Topics in Marketing
- Strategic Issues and Marketing Practices – Case Studies

The course "Introduction to Marketing" introduces the student to the basic concepts and principles of the Marketing science contributing to the acquisition of useful knowledge through the theoretical review of the topic and the analytical presentation of the relevant practical issues, giving particular emphasis in the connection of theory with practice. Indicatively, the course includes the modules of shopper behavior (business and consumer), Marketing research, product, distribution, pricing and integrated Marketing communications strategies, Marketing environment, segmentation, targeting and positioning, etc. Finally, in the context of the course it is attempted to introduce students to Marketing scientific research by presenting and discussing its contribution both to theoretical and practical level.

Learning Outcomes

The specific course objectives for students are the following:

- To acquire the necessary theoretical background in the field of Marketing and to comprehend the basic concepts, principles, and issues.
- To recognize the important role that Marketing science plays giving emphasis to the connection of theory to practice.
- To familiarize with the application of theoretical principles of Marketing at a practical level analyzing business strategies and practices.
- To comprehend the relationship of Marketing with other scientific topics as well as to acquire an initial experience in issues that concern scientific research in the field of Marketing.

Bibliography

- Marketing Principles- Strategies and Applications (in Greek), Authors: Dimitriadis, S. and Tzortzaki, A., Publisher: ROSILI, Year of Publication: 2010 (1st Edition), ISBN: 978-960-7745-28-6

- Introduction to Marketing (in Greek), Authors: Malliaris, P., Publisher: Stamouli Publications, Year of Publication: 2012 (4th Edition), ISBN: 978-960-351-918-8
- Marketing – Strategic Approach (in Greek), Authors: William D. Perreault Jr., Joseph P. Canon, E. Jerome McCarthy, Publisher: BROKEN HILL PUBLISHERS LTD, Year of Publication: 2022 (2nd Edition), ISBN: 9789925588800

Accounting (8181)

Course Description

The objective of the course is the presentation of fundamental accounting concepts, which are necessary for the preparation of financial Statements. An additional objective is the recognition of economic events by the accounting system and their presentation in the financial statements. The course emphasizes both theoretical and practical issues addressed by the International Financial Reporting Standards. The main topics covered in the course are:

- The theoretical foundation of Financial Accounting.
- The Balance Sheet.
- The Income Statement, the Comprehensive Income Statement and the Statement of changes in Shareholders' Equity.
- The Accounting Cycle.
- Introduction to the Statement of Cash Flows and financial statement analysis

Learning Outcomes

Upon completion of this course, students will be able:

- To prepare Financial Statements.
- To recognize and record accounting events.
- To prepare trial balances and general ledger accounts.
- To record adjusting entries and correct accounting errors
- To analyze financial statements using basic financial ratios.

Bibliography

- "Λογιστική: Χρηματοοικονομικές Αναφορές σύμφωνα με τα Ελληνικά και τα Διεθνή Λογιστικά Πρότυπα" (Μπάλλας Α., Χέβας Δ.), Εκδόσεις Μπένου (Α' Έκδοση, 2022)
- "Χρηματοοικονομική Λογιστική" (Γκίκας Δ., Παπαδάκη Α., Σιουγλέ Γ., Δεμοιράκος Ε., Τζόβας Χ.), Εκδόσεις Μπένου ('Ε Έκδοση, 2016).

2nd SEMESTER

Mathematics II (8102)

Course Description

Course contents: Vectors, Matrices and Linear Systems, Dimension, Rank and Linear Transformations, The Vector Space Rn, Determinants, Eigenvalues and Eigenvectors, Orthogonality, Change Basis, Solving Large Linear Systems. Implicit Functions, the Implicit Function Theorem, Introduction to Differential Equations, Modeling with Differential Equations, First Order Differential Equations, Higher Order Differential Equations, Solutions of Second Order Linear Homogeneous Differential Equations with Constant Coefficients, Solutions of Second Order Linear Nonhomogeneous Differential Equations with Constant Coefficients, Applications of Higher Order Differential Equations. Difference Equations, Calculus of Functions with Multiple Variables, Partial Derivatives, Differentiability, Extreme Values of Functions, Optimization Functions Constrained Optimization, the Method of Lagrange Multipliers.

Learning Outcomes

Upon completion of this course, students will be able:

- to describe Management and Economics linear and non-linear models.
- to choose the proper mathematical methods and proper mathematical tools to handle the models.
- to apply linear algebra techniques to solving mathematical models.
- to produce solutions in real-world applications
- to compare non-linear approaches with linear approaches
- to evaluate the solutions provided by the application of Linear Algebra techniques.

Bibliography

- M. Abell and J. Braselton, 2021, Mathematica by Example, Academic Press
- Chiang and K. Wainwright, 2005, "Fundamental Methods of Mathematical Economics", McGraw-Hill International Editions
- K. Sydsaeter and P. Hammond, 2002, "Mathematics for Economic Analysis", Prentice-Hall, Inc.
- Jacques, 2017, Μαθηματικά των Επιστημών Οικονομίας και Διοίκησης, Broken Hill Publishers LTD
- D.C. Lay, S.r.L ay, and J. J. McDonald, 2021, Γραμμική Άλγεβρα και εφαρμογές, Broken Hill Publishers LTD
- S. Lipschutz, M. Lipson, 2015, Γραμμική Αλγεβρα, Σειρά SCHAUM, Εκδόσεις Τζίολα

Quantitative Methods in Economics & Business I (8160)

Course Description

- Combinatorial Analysis
- Sets
- Probability and Conditional Probability
- Discrete Random Variables
- Continuous Random Variables
- Jointly Distributed Discrete Random Variables
- Jointly Distributed Continuous Random Variables
- Central Limit Theorem

Learning Outcomes

Upon completion of this course, students will be able:

- Determination of the number of possible outcomes
- Differentiation between event and event probability
- Calculation of how much likely an event is
- Calculation of how much likely an event is under partial information that another event has taken place
- Checking the independence of events
- Define discrete and continuous random variables
- Modeling of random processes using random variables
- Understanding of the central tendency and dispersion of a random variable
- Definition of random variable probability distributions
- Understanding of the joint behavior of multiple random variables
- Modeling of random processes involving multiple random variables
- Understanding the concept of sampling and the sample mean
- Stating the central limit theorem and applying it for solving practical problems.

Bibliography

- Εισαγωγή στις πιθανότητες με στοιχεία στατιστικής, Μπερτσεκάς Δ. - Τσιτσικλής Γ., ISBN: 9789604183982
- Εισαγωγή στη Θεωρία Πιθανοτήτων και Εφαρμογές, Κούτρας Μ. , ISBN: 9786185309374

- Εισαγωγή στις Πιθανότητες και τη Στατιστική, Γεώργιος Κ. Παπαδόπουλος, ISBN: 9789600117004
- Βασικές Αρχές Θεωρίας Πιθανοτήτων, Sheldon Ross, ISBN: 9789606453779

Programming I (8106)

Course Description

Fundamental elements of programming languages, Object-Oriented modeling, the Java programming language, variables, input and output, comparison operators, logic operators, conditional operators, programming with objects, classes and methods, arrays, exceptions, inheritance.

Learning Outcomes

The course introduces students to the fundamental concepts of programming using the Java programming language. At the first part of the course, students are familiarized with the basics of programming (development of algorithms, Object-oriented design) applied through Java programming. At the second part of the course, the most significant aspects of the Java language are analyzed (classes, methods, variables, tables, control statements, inheritance) in order to provide students the ability to develop their own Java programs. The expected learning outcome is to enable students to design object-oriented programs and develop programming skills using the Java language through a number of lab exercises and personal assignments. The scalable learning method employed (from small program segments to larger – real life – programs) is expected to exercise students in the analytical programming thinking and provide them with the necessary knowledge to build their own programs in a systematic way.

Bibliography

- Java: How to program, 8th edition, Deitel and Deitel, Pearson education, Inc., 2010
- Ε. Α. Παπαθανασίου. Στοιχεία Υπολογιστικών Συστημάτων, Εκδ.Ε.Μπένου, Αθήνα 1998.
- Γ. Λιακέας. Εισαγωγή στην Java. Κλειδάριθμος, Αθήνα, 2000.
- L. Goldschlager and A. Lister. Εισαγωγή στη σύγχρονη επιστήμη των υπολογιστών. Διάυλος, 1994.
- K. N. King. Java Programming: From the Beginning. W.W. Norton & Company, 2000.
- Ron White, Timothy Downs, Stephen Adams. How Computers Work. 5th ed., Que1999
- J. Glenn Brookshear. Computer Science: an overview. Addison Wesley Longman, 1997.

Entrepreneurship (8154)

Course Description

The course material includes the following thematic areas:

- Introduction to the notion of entrepreneurship
- The eco-system of entrepreneurship
- Innovation and creativity
- Business idea – Business model
- Business plan (I): Development
- Business plan (II): Evaluation
- Software for the development of the financial statements of the business plan
- Foundation of the venture
- Managing and growing the venture
- Exit strategies
- Sources of capital and financing in all stages of growth
- International entrepreneurship
- Social entrepreneurship

Learning Outcomes

The course aims to understand the concept of entrepreneurship, to acquire knowledge and skills regarding the entire cycle of the business process, from identifying the opportunity and its evaluation to mobilizing resources, creating the company and managing its development. The course also refers to the concept of social entrepreneurship and the development of social enterprises.

Bibliography

- Neck H. Neck C., Murray E., "Entrepreneurship: Mindset and Practice", Kritiki Publications, 2020
- Deakins D., Freel M. (Edited by Pekka and Chatzidimitriou). "Entrepreneurship and small businesses", Rosili Publications, 2014
- Spinelli S., Adams R. (Edited by Papadakis), "Creation of StartUps: Entrepreneurship for the 21st century", UTOPIA Publications, 2015.

Introduction to Economic Theory (8174)

Course Description

The teaching method that will be applied will include a simplified but at the same time scientific approach to the subjects through the provision of many examples. The instructor's extensive experience in the field and in-depth understanding of the subjects to be taught ensures his ability to simplify and adequately convey the information to the students. Weight will be given to the preparation of assignments and their presentation in the course. In this way, both the business and presentation skills of the students will be developed and the feedback between them will increase.

Learning Outcomes

The course is an introduction to the content and methodology of economic analysis and thinking. Emphasis is placed on the topics of microeconomic analysis, while an introduction to fundamental macroeconomic concepts.

The course examines the mechanisms of market designs and operations, the theories of demand and supply of goods, the organization and behavior of the business, the theories of production and costs, market forms (competition, monopoly, oligopoly) through specific examples. At the macroeconomic level, the concepts and ways of measuring product and income are analyzed as well as the issues of economic development and economic cycles.

Finally, the course is completed with approaches to special topics of the important philosophers of economic thought.

The purpose of the course is to understand the critical issues that Economics deals within both the micro and macro environment. More specifically, how economics agents make decisions will be analyzed. At the end, the lectures will be completed with the main contributions of the great philosophers of Economics.
The student will get to know the basic theories and practices and how to approach the current economic theory in order to deepen these concepts in specialized courses. The ultimate goal is for the course to be both theoretical (macroeconomic analysis of the economic environment and history of economic theories) and practical (microeconomic and financial analysis) for scientists and engineers who wish to later obtain executive and administrative positions in the Economy.

Students are asked to study all the financial problems that concern business units. In addition, they are asked to combine this knowledge through examples and case studies of start-ups. Thus, the course will be enriched by case studies so that the theoretical part becomes easier to understand. Special emphasis will be given to highlighting case studies of innovation and start-ups by engineers and scientists. Every scientist and

engineer who wishes to create a new business entity will be able to get to know the entire economic system globally.

Bibliography

1. Mankiw N. Gregory, Taylor P. Mark, Αθανάσιος Μανιάτης, Σπύρος Ζήκος, Αναστασία Ψειρίδου (επιμέλεια), 2018, Τζιόλα, ISBN: 978-960-418-777-5
2. Krugman Paul, Wells Robin, 2018, GUTENBERG, ISBN: 978-960-01-1939-8
3. N. Gregory Mankiw & Mark P. Taylor, Economics, Thomson Learning, London, 2006
4. David Begg, Stanley Fischer & Rudiger Dornbusch, Economics, 9th edn, McGraw-Hill Higher Education, Maidenhead, 2008

Contemporary Issues & Trends in Management & Technology (8112)

Course Description

The course aims to familiarize students with contemporary issues in management and technology and with research methodologies.

In this context, the course analyses issues related to:

- Human Resource Management
- Production management
- Supply chain management
- Information systems management
- Innovation management and new product development
- Business strategy
- Management of international business
- Corporate Social Responsibility
- Entrepreneurship
- Research methodology

Learning Outcomes

Upon completion of the course, students will be able to:

- Appreciate the significance of various business functions for the effective operation of the business.
- Understand contemporary issues governing the various business functions.
- Understand contemporary trends in management and technology.
- Map and analyse contemporary challenges that businesses face.
- Develop and critically evaluate research ideas.
- Appreciate various research methodologies.
- Recognise that implementing a research project is both an individual and team activity and be able to form successful teams.

Bibliography

- Course notes
- Featured articles from scientific journals

3rd SEMESTER

Decision Making (8111)

Course Description

The course introduces the student to the methodology of decision making, as well as to the major models used today. The three major categories of models are covered: Linear and Integer Programming, Decision Analysis, and Multiple Criteria Decision Making. In each unit, the student is exposed to a number of applications and has the opportunity to apply his/her knowledge to a number of problems and case studies. In addition to developing models, the student is exposed to a number of computer packages, most of them based on Excel, to use in order to solve the problems.

Learning Outcomes

Upon completion of this course, students will be able:

- to choose a systematic methodology of the decision making for complex decisions
- to consider the proper technique of decision making depending on the nature of the problem, the available data and the existing technology
- to produce the proper model that will describe the decision making problem
- to consider complex combinatorial optimization problems
- to apply tools of the new technology to make better decisions and producing the right strategies
- to evaluate with a systematic manner the impacts of alternative decisions and strategies

Bibliography

- Γ. Π. Πραστάκος, 2019, Διοικητική Επιστήμη: Λήψη Αποφάσεων στην Κοινωνία της Πληροφορίας, UNIBOOKS
- Γ. Π. Πραστάκος, 2017, Διοικητική Επιστήμη στη Πράξη: Εφαρμογές στη Σύγχρονη Επιχείρηση, UNIBOOKS
- B. W. Taylor III, (2019), Introduction to Management Science, Pearson Educational Inc, Broken Hill
- C. Ragsdale, (2024), Spreadsheet Modeling & Decision Analysis: A Practical Introduction to Business Analytics, Cengage Learning, Broken Hill
- H. A. Taha, (2016), Operations Research: An Introduction, 10th edition, Prentice Hall, 2016

Quantitative Methods in Economics & Business II (8165)

Course Description

- Descriptive Statistics
- Sampling Distribution
- Confidence Intervals
- Hypothesis Testing for one Population
- Hypothesis Testing for two Populations
- Chi-Squared Tests
- Simple Linear Regression
- Multiple Linear Regression
- Analysis of Variance
- Time Series Analysis

Learning Outcomes

Upon completion of this course, students will be able:

- Distinguish between the different types of data (numerical, ordinal, categorical)
- Understanding of the various sampling strategies

- Visual representation of numerical data (histograms, frequency polygons, bar charts)
- Recognizing the shape of the distribution based on the visual representation of data
- Determination of the measures of central tendency for numerical data
- Understanding the connection between frequency and probability
- Familiarity with the basic probability definitions and rules
- Understanding the probability distribution of basic random variables
- Understanding the concept of the sampling distribution and its relation to the population parameters
- Definition of confidence intervals based on sample data
- Grasping the t-student distribution
- Determination of the sample size for defining confidence intervals of certain length
- Understanding the idea of Hypothesis testing
- Distinguish between the errors that may be done when performing a hypothesis test
- Performing independence tests when frequency values are available for different levels of categorical values
- Understanding of the simple linear regression model
- Recognizing the meaning of the slope and intercept
- Distinguish between explained and unexplained variance
- Realizing the requirement for multiple independent variables
- Ability to develop multiple linear regression models
- Ability to develop multiple regression models using pseudo-variables for different levels of categorical variables
- Understanding the concept of variance analysis
- Comprehending that by analyzing variance, conclusions on the means can be reached
- Distinguishing between the basic building blocks of time series
- Ability to smooth time series data
- Estimating future values of time series

Bibliography

- Statistics for Management and Economics, Keller G., Gaciu N., ISBN: 9789925351275
- Basic Business Statistics: Concepts and Applications, Berenson L. Mark, Levine M. David, Szabat A. Kathryn, ISBN: 9789963274321
- Εφαρμοσμένη Στατιστική και Στατιστική Μηχανική Μάθηση με χρήση των IBM SPSS Statistics, R, Python, Μπερσίμης Σωτήριος, Μπάρτζης Γεώργιος, Παπαδάκης Γεώργιος, Σαχλάς Αθανάσιος, ISBN: 9789604188772
- Στατιστική 5η έκδοση, Ιωάννης Χαλικιάς, ISBN: 9786185131814

Organizational Behavior and Leadership (8115)

Course Description

Organizational behavior addresses the human side of organizations—what people need and desire at work, how they use their time, talent, and energy for collective ends, and how they can work together effectively for a greater good. Leadership guides and influences others to engage in these collective endeavors.

The course therefore offers: 1) learn evidence-based knowledge from the field of organizational behavior in order to identify and apply best organizational practices for leading teams and organizations, and 2) develop the interpersonal skills required to lead diverse groups and organizations effectively.

Learning Outcomes

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

- Utilize organizational behavior theories, frameworks, principles, and tactics to prevent OB problems from emerging and, when problems are identified, intervene to fix them.
- Evaluate the benefits and challenges of alternatives to achieve high performance at the individual, team and organizational levels.
- Develop greater confidence and dexterity with developing and writing different types of assignments.
- Create a plan to improve your own personal leadership skills and to manage their career.

Bibliography

- Μπουραντάς, Δ. Μάνατζμεντ
- Northouse, P. Leadership: Theory and Practice

Database Management Systems (8117)

Course Description

- Introduction: Purpose, data models, database languages, users, transactions, architecture.
- Entity-Relationship Model: Entities, relationships, attributes, keys, mapping cardinalities, weak entities, E-R diagrams, mapping to tables, examples.
- Relational Model: Relations, relational schema, relational algebra.
- The SQL Language: Basic structure, nested subqueries, aggregation, views, update, procedural and embedded SQL, triggers.
- Relational Design: Integrity constraints, functional dependencies, decomposition, normalization.
- Storing and Indexing: File organization, indexing, hashing, trees.
- Special Topics: Data warehousing, OLAP, data mining, data streams, OO DBs.

Learning Outcomes

Databases began as a simple application in early 70s and grew to one of the most important fields in computer industry, touching hundreds of IT applications. This outcome was somehow expected, since the focus of database research is the description, storage and usage of data. To describe a database application, we need a data model, such as the entity-relationship or the relational model. To retrieve and make use of the stored data, we need a generic query language, such as SQL. Finally, there are numerous ways to store data, depending on how this will be used. The goal of this course is to educate students on how to design properly, build efficiently and use intelligently a database. Furthermore, it should make apparent the various trade-offs that exist in designing, building and using such an application.

Bibliography

- Database Management Systems, Vol. I and II, R. Ramakrishnan & J. Gehrke, 2nd edition, McGraw-Hill, 2002.
- Database System Concepts, Silberschatz, Korth, Sudarshan, 5th edition, McGraw-Hill, 2004

Programming II (8119)

Course Description

Development environments and languages - compilers and interpreters - programming with objects- code style - building classes – inheritance - development of large systems - exceptions, assertions, interfaces, abstract patterns, packages - generalizations and threads - data structures: strings, iterators, vectors, stacks, and maps - structuring data with XML - file handling - development of graphical applications - string processing with regular expressions – functional programming and streams – development of internet applications.

Learning Outcomes

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

- Have a basic knowledge of the methods and programming techniques used for implementing information systems
- design and build moderately complex applications
- Use ready-made libraries and data structures
- Reuse design patterns to structure their code
- Process complex data structures and sources
- Evaluate alternative technologies and information system evaluation strategies

Bibliography

- Harvey M., Paul J. Deitel. Java How to Program, 10th Edition. Χ. ΓΚΙΟΥΡΔΑ και ΣΙΑ ΕΕ, 2015. ISBN: 978-960-512-6810
- Νικήτας Ν. Καρανικόλας. Java για λίγους. Εκδόσεις νέων τεχνολογιών, 2018. ISBN: 978-960-578-044-9
- Josh Juneau. Java 9 Recipes, 3rd Edition. Springer, 2017. ISBN: 9781484219768 (Available to AUEB students via HEAL-LINK)

4th SEMESTER

Human Resource Management (8114)

Course Description

Undeniably, organizations cannot exist without employees. Although the management of many organizations often places more emphasis on functional specializations, such as financial control and operations management, the human element remains crucial to achieving the goals mentioned above.

This course is designed to provide a comprehensive overview of the field of Human Resource Management. In particular, the purpose and role of Human Resource Management in the broader business environment will be examined, a critical evaluation of its core functions will be made, as well as an analysis of modern strategic approaches.

Students, as future managers, are invited to understand how Human Resource Management can support and enhance the overall business purpose. At the same time, they are called upon to develop critical thinking in order to evaluate in depth its basic functions, examining how and why they are chosen, how they are implemented, as well as what their results are. They will also cultivate the skill of weighing bibliographic models and theories of best practice, evaluating their application or the need to reconsider them in practice. As conscious citizens, they are also called upon to demonstrate a sense of responsibility and commitment to the ethical application of Human Resources Management.

The contents of the course include:

- Introduction to HRM and its significance in modern businesses
- Business Strategy Management and its link to HRM
- Organizational Design and HRM
- Human Resource Planning
- Job Analysis and Description
- Recruitment, Personnel Selection, and Interviewing
- Employee Evaluation
- Training and Development of Personnel
- Compensation and Benefits Administration
- International HRM

Learning Outcomes

Upon completion of this course, students will be able:

- To describe and successfully evaluate the purpose and role of HR functions in organizations.
- To demonstrate knowledge and understanding of theories and concepts in Human Resources Management.
- To know and apply the basic functions of HRM (e.g., recruitment and selection, training and development, etc.).
- To identify and successfully resolve a range of HR issues through the application of appropriate techniques and approaches, integrating theory into a wide range of organizational conditions and circumstances.

Bibliography

Greek

- Παπαλεξανδρή, Ν., & Μπουραντάς, Δ. (2023). Διοίκηση Ανθρώπινου Δυναμικού: Πολιτικές & Πρακτικές στη Σύγχρονη Εποχή. Εκδόσεις Μπένου.
- Βακόλα, Μ. και Νικολάου, Ι. (2019), Οργανωσιακή Ψυχολογία και Συμπεριφορά, Εκδόσεις Rosili, Αθήνα.

English

- Armstrong, A., & Taylor, S. (2020). Armstrong's Handbook of Human Resource Management Practice. 15th ed. Kogan Page.
- Carbery, R., & Cross, C. (2013). Human Resource Management: A Concise Introduction. Palgrave Macmillan.
- Martocchio, J.J. (2023). Διαχείριση Ανθρωπίνου Δυναμικού. Εκδόσεις Τζιόλας.
- Paauwe, J. and Farndale, E. (2017). Strategy, HRM, and Performance: A Contextual Approach. 2nd ed. Oxford University Press.
- Ulrich, D. (1997). Human Resource Champions: The Next Agenda for Adding Value and Delivering Results. Harvard Business School Press.
- Wilkinson, A.J., Bacon, N.A., Redman, T., & Snell, S. (2009). The SAGE Handbook of Human Resource Management. SAGE.

Mathematical Optimization (8116)

Course Description

The course examines the theory and algorithms of Mathematical Optimization, as well as their relationship with other fields (such as Game Theory). Specifically, the optimization of linear problems, Dual Theory, basic Linear Programming algorithms, basic concepts of Non-Linear Programming and Integer Programming, problem formulation, Dynamic Programming, and the relationship of Linear Programming to Game Theory are examined.

The course material includes the following topics:

- Elements of Linear Algebra, parametric solution of linear equations
- The Simplex Method: description, geometric interpretation and special cases
- Sensitivity analysis and economic meaning
- The Karush-Kuhn-Tucker conditions, description and proof
- Duality Theory
- Introduction to Non-Linear Programming
- The transportation problem and the Network Simplex Algorithm
- Model building and formulation, applications and case-studies
- Integer Programming, modeling and solution methods
- Linear Programming and Game Theory
- Dynamic Programming: formulations, solution approach and applications

Learning Outcomes

The aim is to understand the above and their combined application to optimization problems as they arise from practical applications. Sub-objectives are to deepen the understanding of mathematical structures and properties of problem categories, the use of Mathematical Optimization algorithms and the design of their variants for special cases of problems and the formulation and solution of relevant practical problems.

Bibliography

- Textbook (lecture notes): P. Miliotis, I. Mourtos: Discrete Optimisation, AUEB edition (in Greek)
- Additional textbooks, available in AUEB library
- Integer and combinatorial optimization, Wolsey, Laurence A., Nemhauser, George L., New York: Wiley 1988.
- Combinatorial optimization: networks and matroids, Lawler, Eugene L., New York: Holt.

Financial Management (8113)

Course Description

The content of the course includes the following main subject areas:

- Financial credit system
- Time value of money
- Criteria for evaluating investment plans
- Risk and return on investments
- Asset valuation models
- Financing decisions and effectiveness of money and capital markets

Learning Outcomes

The purpose of the course is to cover the basic principles of financial management that the student of economic sciences needs. Emphasis is placed on the operation of the financial system in which modern businesses operate, the concept of time value of money, investment and financing decisions of enterprises, the assessment of investment projects under uncertainty, the proper valuation of the assets in which companies invest (And individuals), etc. As part of the course students are asked to apply in practice the concepts and tools, they have acquired either by doing optional work on empirical data or by dealing with a case study of a real organization or business.

Bibliography

- Brealey, R., Myers S. and Allen F., Principles of Business Finance, Utopia Publications.

Analysis & Design of Information Systems (8120)

Course Description

The course aims to respond to the organizational need to identify and understand problems in the management of information and processes. In this course, students are exposed to methods for the systemic and systematic study and modeling of such problems, so that they can be supported by information systems. The course focuses on the identification, modeling and documentation of the requirements of the various users and stakeholders that influenced and are influenced by the development of information systems. The transition from requirements to functional specifications, information system design and the development and implementation plan in the organization that will use the information system are also studied. Emphasis is given on the role of the human agent in information systems development. The practical part of the course concerns the analysis and design of information systems using tools such as Soft Systems Methodology (SSM), the Unified Modeling Language (UML) and the website design language HTML.

Learning Outcomes

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

- understand the information systems development process and have the essential theoretical and practical knowledge and skills necessary for its effective management (teamwork, analysis of business problems and proposal of suitable IS solutions, evaluation of proposal, report writing).
- recognize, model, and document requirements from various users and stakeholders that impact and are impacted by the design of information systems.
- transform requirements into functional specifications for an information system.
- understand the significant differences between Waterfall and Agile methodologies in the process of developing digital systems, with an emphasis on analysis and design

Bibliography

- Ανάλυση και Σχεδιασμός Συστημάτων με τη UML 2.0: Μια αντικειμενοστρεφής Προσέγγιση, Alan Dennis, Barbara Haley Wixom, David Tegarden
- Ανάλυση και Σχεδίαση Συστημάτων, 10η Έκδοση, Kenneth E. Kendall, Julie E. Kendall
- Αντικειμενοστρεφής Ανάπτυξη Λογισμικού με τη UML, Βασίλης Γερογιάννης, Γιώργος Κακαρόντζας, Αχιλλέας Καμέας, Γιάννης Σταμέλος, Πάνος Φιτσίλης
- Πληροφοριακά Συστήματα, 6η Έκδοση, Hoffer J.
- Μηχανική Λογισμικού, 1η Έκδοση (2023), Γεώργιος Κακαρόντζας, Ιωάννης Σταμέλος
- Selected case studies

Algorithms and Data Structures (8162)

Course Description

- Introduction to algorithms
- Complexity
- Data structures (stacks, queues, priority queues, lists, trees, heaps, hash tables, graphs)
- Shortest paths
- Compression
- Cryptography (symmetric, public key)
- Task scheduling
- PageRank
- Strongest paths
- Searching
- Sorting
- Information
- Entropy
- Introduction to Machine Learning, Classification, Decision Trees
- Randomized Algorithms
- String matching
- Python Programming

Bibliography

- Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, Introduction to Algorithms 4th ed., MIT Press, 2022.
- Jon Kleinberg, Éva Tardos, Algorithm Design, Pearson, 2005.
- Jeff Edmonds, How to Think about Algorithms, 2nd ed., Cambridge University Press, 2024.
- Tim Roughgarden, Algorithms Illuminated, Omnibus edition, Cambridge University Press, 2022.

5th SEMESTER

Project Management (8121)

Course Description

Introduction – Description of Production Systems. Demand Forecasting. Presentation of the Modern Supply Chain and its Coordination. Quantitative and Temporal Production Planning. Inventory Management and Replenishment Policies. Determination of Optimal Production or Order Quantity. Pricing and Revenue Management. Discount Planning. Decision-Making Processes under Uncertainty.

Learning Outcomes

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

- Understand the scope, tasks, "building blocks" of Operations Management, and its international dimension. Analyse how organizations function from a process perspective of interconnected tasks and activities that often span geographical borders,
- Understand, apply, analyse, and evaluate a variety of qualitative and quantitative tools and methods used to address and solve operations, process and supply chain problems and inform decision-making in support of the strategic priorities of an organization,
- Analyse and appraise how operations impact on competitiveness, productivity, and strategy in organizations with both local and global presence,
- Evaluate state-of-the art operations concepts and strategies with the objective of developing strategic recommendations for improving operations and design appropriate supply chain strategies for products/services with distinct characteristics of demand and supply.

Bibliography

- Cachon, G. and C. Terwiesch, "Matching Supply with Demand: An Introduction to Operations Management", 5th Edition, New York, McGraw-Hill Education, 2024.
- Krajewski, L.J., L.P. Ritzman and M.K. Malhotra, "Operations Management Processes and Supply Chains", 11th Edition, New York, Pearson, 2016.
- Slack, N. and A. Brandon-Jones, "Operations Management", 9th Edition, New York, Pearson. 2019.
- Zissis, D., Ioannou, G. and Burnetas, A., "Coordinating manufacturing and warehousing decisions under bilateral information asymmetry". Production and Operations Management, 2020, 29(2), 371-387.

Optimization Methods in Management Science (8123)

Course Description

- Introduction to Python Programming language
- Ordering Problems
- Traveling Salesman Problem
- Vehicle Routing Problem
- Assignment Problems
- 1-D Bin Packing Problem
- Linear Sum Assignment Problem
- Graph Colouring Problem
- Quadratic Assignment Problem
- Προβλήματα Επιλογής
- Set Covering Problem
- Weighted Set Covering Problem
- Knapsack Problem
- Shortest Path Problem

- Local Search
- Local Search Metaheuristics
- Classification Problems
- Clustering Problems

Learning Outcomes

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

- Identify the operational and strategic goals and constraints that govern the business problems solved during the class
- Distinguish the computational properties and computational characteristics of business problems
- Select and suggest the appropriate heuristic and metaheuristic techniques to solve the aforementioned problems
- Design heuristic and metaheuristic techniques to solve business problems involving big data.
- Compare the efficiency of the above heuristic and metaheuristic methods
- Develop the above heuristic and metaheuristic methods in Python
- Develop basic machine learning algorithms for classification and clustering problems

Bibliography

- Introduction to Computation and Programming Using Python, 3rd Edition, Guttag John V., ISBN: 9789604911592
- Python - Προγραμματισμός για Επιστήμες Υπολογιστών και Δεδομένων, Lin Johnny Wei-Bing, Aizenman Hannah, Espinel Erin Manette Cartas, Gunnerson Kim, Liu Joanne, Κατσαούνης Θεόδωρος, ISBN: 9786182210260
- Μεθευρετικοί και Εξελικτικοί Αλγόριθμοι σε Προβλήματα Διοικητικής Επιστήμης, Ιωάννης Μαρινάκης, Μαγδαληνή Μαρινάκη, Νικόλαος Φ. Ματσατσίνης, Κωνσταντίνος Ζοπουνίδης, ISBN: 9789604614226
- Theoretical Aspects of Local Search [electronic resource], Wil Michiels / Jan Korst / Emile Aarts, ISBN: 9783540358541

Management and Information Technology (8125)

Course Description

The Management and Information Technology course focuses on the following learning pillars:

- The importance of information technology for organizations: managing information systems, strategic information systems, business process re-engineering and informational technology, the role of information technology in the management of change, harmonization of business and IT strategy.
- The use and exploitation of informational systems: support management decisions, support intra-organizational procedures, managing data and knowledge, integration of processes, enterprise resource planning (ERP), electronic commerce.
- Business Transformation and the role of information systems: the transition from traditional to electronic business, business process reengineering (BPR), the impact of IT on competition and cooperation.
- Hands-on experience in state-of-the-art information systems, including Salesforce CRM digital platform. Students will be provided with the necessary resources to obtain official student certifications.

Learning Outcomes

Upon completion of this course, students will be able:

- To comprehend the basic dimensions of the use of Information and Communications Technologies (ICT) in organizations and the main issues that are associated with their effective exploitation
- To acquire the necessary conceptual background, in order to comprehend the issues that managers deal with, regarding ICTs

- To familiarize with the main functions of appropriate management of information systems (IS) in organizations and the fundamental theoretical and practical models that lead to the management of those operations
- To comprehend how ICTs affect the organizational structure of businesses and their relations with the business environment
- To provide students with practical experience of using Information Systems at real-life business scenarios

Bibliography

- Innovation, Strategy, Development and Information Systems, Georgios Doukidis
- The Digital Future, Georgios Doukidis
- Management Information Systems, Kenneth C. Laudon, Jane P. Laudon
- Principles of Information Systems, Stair Ralph, Reynolds George

Work & Organizational Psychology (8127)

Course Description

Work & Organizational Psychology is an area of applied psychology. It investigates employees' interaction at workplace using social sciences' theories and research designs, exploring simultaneously relationships amongst employees. The course is designed to offer an introduction to the field of work and organizational psychology in relations to courses such as Human Resource Management and Organizational Behaviour and Leadership.

The course content is based on the analysis of the basic principles and applications of work and organizational psychology. The individual disciplines-units that will be developed are psychometric assessment and measurement of individual differences, social psychology, job satisfaction and work stress, etc.

Learning Outcomes

Upon completion of this course, students will be able to use the models, constructs and practical implications of organizational psychology in order to perform more effectively at work in benefit of themselves and their organizations.

Bibliography

Vakola, M. & Nikolaou, I. (2019). Organizational Psychology & Behavior. Athens: Rossili (2nd edition, in Greek).

Information Systems Implementation and Architecture (8129)

Course Description

Web applications and Internet technologies play an increasingly important role in information systems development, by changing the user interaction and supporting new functions and business models. The aim of this course is to provide students with a complete view of information systems development, in general, and web applications in particular, as well as the technologies used in this context and the applications that can be supported. During the course, practical and theoretical subjects will be covered concerning software design, development and control, contemporary software development environments, tools and Internet technologies. Emphasis will be placed on layered architecture design, application design, implementation and testing. At the same time, this course aims to complement and exploit the knowledge students have already acquired in previous courses, such as databases, systems analysis and design, programming etc., in order to support the design and development of a full functional website, which constitutes the practical part of the course.

Learning Outcomes

Upon completion of the course, students will be able to:

- identify and define issues relative to the system architecture and the design of applications emphasizing on web applications.
- identify the requirements for the development, the testing and delivery of web applications.
- combine knowledge on programming of web applications.
- assess the needs of modern applications and technologies used in the development of information systems in the web.
- select the appropriate architecture for web applications.
- design architectures for applications emphasizing on web applications.
- develop web applications.
- combine the available technologies in developing their own web applications.
- organize the team for the successful design, development and delivery of a web application.
- compare their designed architecture and developed web application with respective ones.
- evaluate web applications including their own.
- support their design decisions for the architecture.
- evaluate the business-related consequences relevant to the architectural design of Information systems.

Bibliography

- Servlets και Σελίδες Διακομιστή Java, Marty Hall, Larry Brown, Εκδόσεις Κλειδάριθμος
- Ανάλυση και σχεδιασμός συστημάτων με τη UML, 3η αμερικανική έκδοση των Alan Dennis, Indiana University Barbara Haley Wixom, University of Virginia, McIntyre School of Business David Tegarden, Virginia Tech ISBN: 978-0-470-07478-7 (αμερ. έκδοση), 978-960-461-389-2 (ελλην.έκδοση) Τα κεφάλαια που αφορούν στο συγκεκριμένο μάθημα είναι τα κεφάλαια 8-14.
- Fundamentals of Software Architecture: An Engineering Approach. O'Reilly Media. 2020. ISBN 978-1492043454.
- Clements, Paul; Felix Bachmann; Len Bass; David Garlan; James Ivers; Reed Little; Paulo Merson; Robert Nord; Judith Stafford (2010). Documenting Software Architectures: Views and Beyond, Second Edition. Boston: Addison-Wesley. ISBN 978-0-321-55268-6.
- Bass, Len; Paul Clements; Rick Kazman (2012). Software Architecture in Practice, Third Edition. Boston: Addison-Wesley. ISBN 978-0-321-81573-6.

6th SEMESTER

Business Strategy (8142)

Course Description

The course contains four main parts which refer to the following:

- Strategy as a concept: Views of strategy "fit" to environment and capabilities, strategy as intention. Strategic processes, emerging strategy.
- Strategic analysis: frameworks, methods and tools for analysing the business environment. Resources and capabilities analysis. Stakeholder analysis. Sources of competitive advantage.
- Strategic choice: Choices of key competitive strategies. Creating alternative strategic options, across a range of growth internal and external to the firm. Options for strategic alliances versus acquisitions. Ways of evaluating these options.
- Strategy implementation: Translating strategy into programs with actions and activities covering a wide range: operational strategies, structures, systems, skills, culture, management styles. Structure and strategy. Strategic planning processes. Implementation of strategic changes.

Learning Outcomes

Upon completion of the course, students will be able to:

- Understand strategic issues in the business world.
- Be familiar with a set of concepts, frameworks, methods and tools from the formulation of a business strategy to its implementation.
- Apply concepts and tools.
- Appreciate both the theories developed in the field and business practices
- Evaluate and analyse strategic issues in the context of the complex processes that take place in the contemporary business environment.

Bibliography

- Whittington, P. Regnér, D. Angwin, G. Johnson and K. Scholes 2023 "Στρατηγική επιχειρήσεων", Εκδόσεις Κριτική, ISBN: 9789605864576 (Κωδικός Βιβλίου στον Εύδοξο: 122075438).
- Παπαδάκης Βασίλης 2023 «Στρατηγική των Επιχειρήσεων: Θεωρία και Μελέτες Περιπτώσεων», Εκδόσεις Μπένου, ISBN: 9789603591856 (Κωδικός Βιβλίου στον Εύδοξο: 122091494).
- Course notes
- Featured articles from scientific journals

Analysis & Modeling of Business Processes and Systems (8126)

Course Description

Theoretical frameworks methods and tequniques used currently for studing analyzing designing and managing work systems supported by ICTs.

Three basic pillars structure the course:

- Theoretical framework combining work systems, business processes and IS as a basis for business analysis and design of organizational systems and technology
- Basic methods and tequniques for analysis and modeling of business processes emphasing the use of information systems with the use of ARIS toolset.
- Implementation and value creation of analysis and modeling results for performance management and strategic alignment of information systems.

Learning Outcomes

- Understanding the connection between work systems, business processes and information systems
- Applying business information systems, analysis and modelling tequniques in organizational contexts.
- Evaluating the implementation of business process modelling for architecture and performance management and strategic alignment of information systems.

Bibliography

Α. Πουλυμενάκου, Αρχές και Τεχνικές Ανάλυσης και Μοντελοποίησης Επιχειρηματικών Διαδικασιών και Πληροφοριακών Συστημάτων, Πανεπιστημιακές Σημειώσεις, Οικονομικό Πανεπιστήμιο Αθηνών.

Quality Management (8130)

Course Description

The course is structured along the following five modules:

- Introduction and Definitions. The notions of quality and quality management. The Quality – Cost – Lead-Time framework, Evolution of quality management, Design and conformance quality, Total Quality Management.

- Statistical Process Control - SPC: Measuring quality, Origins and Principles of SPC, Statistical grounds, Quality charts and Process capability, Capability indices. Case studies and exercises in class and as take-home.
- Overview of Quality Management Tools: Tools for diagnosis, Brainstorming, Scatter and Relations diagrams, Fishbone diagram, Pareto Analysis, Quality Function Deployment, FMEA, Value Analysis, etc.
- Overview of Quality Standards and Excellence Frameworks: Presentation and discussion of different standards and frameworks, Focus on ISO 9001 and EFQM. Quality Procedures.
- Strategy, Organization and HRM for Quality: Quality strategy and leadership, Structural, organizational and cultural issues, Motivation, evaluation and training for quality, Team dynamics.

Learning Outcomes

Upon completion of the course, students will be able to:

- Describe and define basic notions of quality and quality management.
- Understand and explain how quality contributes to the achievement of goals and of competitive advantage.
- Apply basic quality management tools, including Statistical Process Control (SPC).
- Design and develop quality procedures according to quality certification and excellence models (e.g., ISO 9001, EFQM).
- Compare and evaluate approaches and systems related to quality management presented in case studies.

Bibliography

- Book [122092518]: ΔΙΟΙΚΗΣΗ ΟΛΙΚΗΣ ΠΟΙΟΤΗΤΑΣ, ΨΩΜΑΣ ΕΥΑΓΓΕΛΟΣ, ΤΣΑΡΟΥΧΑΣ ΠΑΝΑΓΙΩΤΗΣ, ΝΤΕΛΙΟΥ ΚΛΕΟΠΑΤΡΑ, ΕΚΔΟΣΕΙΣ ΔΙΣΙΓΜΑ ΙΚΕ.
- Book [59414712]: Διαχείριση Ποιότητας και Οργανωσιακή Αριστεία, 8η Εκδοση, Goetsch L. David - Stanley B. Davis, Γεώργιος Μποχώρης (επιμέλεια), ΕΚΔΟΣΕΙΣ Α. ΤΖΙΟΛΑ & ΥΙΟΙ Α.Ε.

Supply Chain Management (8132)

Course Description

The contents of the course cover the following thematic sections:

- Definition of Supply Chain Management and Current trends in Supply Chain Management. Basic principles of the supply chain network
- Basic functions of the Supply Chain Management system. Supply Chain Management in the service sector.
- Basic principles of Supply Chain design. Product / service characteristics and supply chain organization and planning requirements.
- Level of Service determination. The ordering system and customer service. Orders Management.
- Supply Chain Network Planning, Location of Warehouses and Distribution Centers
- Managing Inventory in the Supply Chain.
- Transport and distribution of products. Distribution Network Models. Characteristics of Freight Transport Systems. Selection of means/ service of Transport.
- International Transportation, INCOTERMS, Types of transaction.
- Management of warehouse and distribution center operations. Organization and design of a warehouse. Storage Systems.
- Outsourcing Supply Chain Management functions to third parties.
- Procurement and types/terms of contracts with suppliers

Learning Outcomes

Upon completion of the course, the students will be able to:

- Understand and analyze the basic categories of supply chain management decisions for products and services.
- Coordinate the participation of companies in a supply chain with the aim of improving the level of customer service at the lowest possible cost
- Evaluate the efficiency of the supply chain of a business / organization using appropriate models.

Bibliography

- Supply Chain Management, 7th Edition, Edition: 7th/2020, Authors: Chopra Sunil - Meindl Peter, Esp. Edited by: Konstantinos Androutsopoulos, Michalis Mantas ISBN: 978-960-418-875-8
- Ronald H. Ballou (2004), “Business Logistics / Supply Chain Management”, 5th Edition, Prentice Hall, New Jersey.
- James F. Robeson, William C. Copacino (1994), “The Logistics Handbook”, The Free Press, New York.
- James R. Stock, Douglas M. Lambert (2001), “Strategic Logistics Management”, 4th Edition, McGraw-Hill/Irwin Publishing.

Production & Operations Management (8134)

Course Description

Introduction – Description of Production Systems. Demand Forecasting. Presentation of the Modern Supply Chain and its Coordination. Quantitative and Temporal Production Planning. Inventory Management and Replenishment Policies. Determination of Optimal Production or Order Quantity. Pricing and Revenue Management. Discount Planning. Decision-Making Processes under Uncertainty.

The course includes analysis of basic business processes that make up the dynamic operational structures of businesses and organizations, such as product-service design, demand forecasting, time and quantity resource planning, supply chain coordination, and revenue management.

Learning Outcomes

In today's highly dynamic business environment, the need for effective management of operations and processes is essential. Abnormal and emergency situations are increasing, in which businesses and organizations must make immediate decisions before it is too late. Recent examples include the pandemic, Brexit, and the closure of the Suez Canal, where businesses found themselves in "uncharted waters" regarding their future and customer service and pre-agreed contracts. The modern business must be able to deal with the changes occurring in the environment in which it operates and have the appropriate personnel who will make the right decisions at the right time. Both immediate decision-making and the quality of these are key factors for each business to form a competitive advantage, contributing to its sustainability and profitability.

The course aims to introduce the student to issues related to design, programming, control and optimization of processes through which finite resources (such as raw materials, human resources, energy, etc.) are transformed into products or services of specific specifications. Essentially, the aim is to make decisions related to production processes, so that the products produced or the services offered are in accordance with the specifications, the quantities required by the market, within specific deadlines and with the company's schedule, at the lowest possible cost.

Upon completion of the course, students will be able to:

- Understand the scope, tasks, “building blocks” of Operations Management, and its international dimension. Analyse how organizations function from a process perspective of interconnected tasks and activities that often span geographical borders,

- Understand, apply, analyse, and evaluate a variety of qualitative and quantitative tools and methods used to address and solve operations, process and supply chain problems and inform decision-making in support of the strategic priorities of an organization,
- Analyse and appraise how operations impact on competitiveness, productivity, and strategy in organizations with both local and global presence
- Evaluate state-of-the art operations concepts and strategies with the objective to develop strategic recommendations for improving operations and design appropriate supply chain strategies for products/services with distinct characteristics of demand and supply.

Bibliography

- Cachon, G. and C. Terwiesch, "Matching Supply with Demand: An Introduction to Operations Management", 5th Edition, New York, McGraw-Hill Education, 2024.
- Krajewski, L.J., L.P. Ritzman and M.K. Malhotra, "Operations Management Processes and Supply Chains", 11th Edition, New York, Pearson, 2016.
- Slack, N. and A. Brandon-Jones, "Operations Management", 9th Edition, New York, Pearson. 2019.
- Zissis, D., Ioannou, G. and Burnetas, A., "Coordinating manufacturing and warehousing decisions under bilateral information asymmetry". Production and Operations Management, 2020, 29(2), 371-387.

Talent Management and Technology (8136)

Course Description

The difficulty of finding talent and developing future leaders is a perennial challenge for organizational leaders. Organizations that have matured in talent management report extremely positive results in attracting the right people, implementing inclusive practices and offering career development opportunities. By leveraging a wide range of technologies, these organizations enhance two-way communication, timely information exchange and tailoring practices to the needs of talent, achieving increased engagement and loyalty of these employees.

This course is designed to provide a comprehensive overview of the field of talent management, highlighting the crucial role of technology. Specifically, key concepts and practices, including career management, will be examined, while the context in which they are applied will be evaluated. Finally, the role of technology and data in talent management decision-making will be analyzed.

Students are invited to understand how effective talent management can bring positive business results through relevant practices. They are also invited to develop critical thinking skills to evaluate when, how, and why technology can function as a valuable tool in talent management.

The course contents are:

- Introduction to talent management
- Contextual issues in talent management
- The turnover of talent management I
- The turnover of talent management II
- Technology as an aly in talent management
- Talent Analytics: The use of human resources data
- Talent career management
- Strategic talent management
- Global talent management I
- Global Talent management II

Learning Outcomes

Upon successful completion of the course, students will be able to:

- Demonstrate knowledge and understanding of key concepts and practices in talent management.
- Explain how context influences the implementation of specific talent management practices
- Critically evaluate how technology and data support decision-making related to talent management.
- Analyze talent development and career management strategies.

Bibliography

1. Cascio, W.F (2025). Διοίκηση Ανθρώπινου Δυναμικού, Παραγωγικότητα, Ποιότητα Εργασιακής Ζωής, Κέρδη. Επιμέλεια: Μαρία Βακόλα και Ιωάννης Νικολάου, Εκδόσεις Προπομπός.
2. Βακόλα, Μ., & Νικολάου Ι. (2019). Οργανωσιακή Ψυχολογία & Συμπεριφορά. Εκδόσεις Rosili.
3. Παπαλεξανδρή, Ν., & Μπουραντάς, Δ. (2023). Διοίκηση Ανθρώπινου Δυναμικού: Πολιτικές & Πρακτικές στη Σύγχρονη Εποχή. Εκδόσεις Μπένου.

Software Engineering in Practice (8138)

Course Description

- Software Requirements
- Software Design
- Software Construction.
- Software Testing
- Software Maintenance
- Software Configuration Management
- Software Engineering Management
- Software Engineering Process
- Software Engineering Models and Methods
- Software Quality
- Software Engineering Professional Practice
- Software Engineering Economics

Learning Outcomes

The objective of the course is to allow students to read, understand, and evaluate a system's software elements (code, structure, architecture). Having followed this course, students should be able to intelligently decide on how existing systems will be maintained, set up design and evolution strategies for legacy code, and prescribe the use of refactoring for dealing with architectural mismatches and low-quality code. An innovative aspect of the course involves the use of Open Source Software (OSS) in course examples and exercises. Through the study of OSS students will be able to see how non-trivial applications like the Apache Web server, the Postgres Relational Database Management System, the Jakarta Java servlet container and the Cocoon framework are structured.

Bibliography

- "Stephanos Androutsellis-Theotokis, Diomidis Spinellis, Maria Kechagia, and Georgios Gousios. Open source software: A survey from 10,000 feet. Foundations and Trends in Technology, Information and Operations Management, 4(3–4):187–347, 2010. (doi:10.1561/0200000026)
- Brian D. Eubanks. Wicked Cool Java: Code Bits, Open-Source Libraries, and Project Ideas. No Starch Press, San Francisco, 2006.
- Michael Feathers. Working Effectively with Legacy Code. Prentice Hall, Englewood Cliffs, NJ, 2005.
- Martin Fowler. Refactoring: Improving the Design of Existing Code. Addison-Wesley, Boston, MA, 2000. With contributions by Kent Beck, John Brant, William Opdyke, and Don Roberts.
- Pete Goodlife. Code Craft: The Practice of Writing Excellent Code. No Starch Press, San Francisco, 2007.

- Andrew Hunt and David Thomas. The Pragmatic Programmer: From Journeyman to Master. Addison-Wesley, Boston, MA, 2000.
- Andy Hunt and Dave Thomas. Software archeology. IEEE Software, 19(2):20–22, March/April 2002.
- Brian W. Kernighan and Rob Pike. The UNIX Programming Environment. Prentice-Hall, Englewood Cliffs, NJ, 1984.
- Brian W. Kernighan and Rob Pike. The Practice of Programming. Addison-Wesley, Reading, MA, 1999.
- John Lions. Lions' Commentary on Unix 6th Edition with Source Code. Annabooks, Poway, CA, 1996.
- Steve C McConnell. Code Complete: A Practical Handbook of Software Construction. Microsoft Press, Redmond, WA, second edition, 2004.
- Andy Oram and Greg Wilson. Beautiful Code: Leading Programmers Explain How They Think. O'Reilly and Associates, Sebastopol, CA, 2007.
- Charles Petzold. Code: The Hidden Language of Computer Hardware and Software. Microsoft Press, Redmond, WA, 1999.
- Eric S. Raymond. The Cathedral and the Bazaar: Musings on Linux and Open Source by an Accidental Revolutionary. O' Reilly and Associates, Sebastopol, CA, 2001.
- Eric S. Raymond. The Art of Unix Programming. Addison-Wesley, 2003.
- Sulayman K. Sowe, Ioannis G. Stamelos, and Ioannis Samoladas, editors. Emerging Free and Open Source Software Practices. IGI Publishing, Hershey, PA, 2007.
- Diomidis Spinellis and Georgios Gousios, editors. Beautiful Architecture: Leading Software Engineers Explain How They Think. O'Reilly, Sebastopol, CA, 2009.
- Diomidis Spinellis and Clements Szyperski. How is open source affecting software development?. IEEE Software, 21(1):28–33, January/February 2004.
- Diomidis Spinellis. Code Reading: The Open Source Perspective. Addison-Wesley, Boston, MA, 2003.
- Diomidis Spinellis. Code Quality: The Open Source Perspective. Addison-Wesley, Boston, MA, 2006."

Operations Research and Computational Intelligence (8144)

Course Description

The course material includes the following thematic areas:

- Metaheuristic methods for optimizing a solution: Local Search, GRASP, Tabu Search, Iterated Local Search and Guided Local Search
- Metaheuristic methods for optimizing a population of solutions: Ant Colony Optimization, Swarm Intelligence and evolutionary algorithms
- Modeling of classical optimization problems with emphasis on Logistics problems
- Mathematical programming using Gurobi
- Constraint Programming
- Matheuristics and hybrid approaches to computational intelligence
- Applications of Operations Research in industry and its connection with Software Engineering

Learning Outcomes

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

1. Understand the basic principles of metaheuristic computational intelligence algorithms and will select appropriate methods for different optimization problems.
2. Develop models for complex decision problems using mathematical programming techniques
3. Implement optimization algorithms in Python and evaluate their effectiveness.
4. Develop hybrid approaches by combining different methods.
5. Critically address computational problems beyond the scope of Operations Research.

Bibliography

1. ΜΕΘΕΥΡΕΤΙΚΟΙ ΚΑΙ ΕΞΕΛΙΚΤΙΚΟΙ ΑΛΓΟΡΙΘΜΟΙ ΣΕ ΠΡΟΒΛΗΜΑΤΑ ΔΙΟΙΚΗΤΙΚΗΣ ΕΠΙΣΤΗΜΗΣ, ΙΩΑΝΝΗΣ ΜΑΡΙΝΑΚΗΣ, ΜΑΓΔΑΛΗΝΗ ΜΑΡΙΝΑΚΗ, ΝΙΚΟΛΑΟΣ Φ. ΜΑΤΣΑΤΣΙΝΗΣ, ΚΩΝΣΤΑΝΤΙΝΟΣ ΖΟΠΟΥΝΙΔΗΣ
2. Introduction to Computation and Programming Using Python, 3rd Edition, Guttag John V.

E-Business Technologies and Applications (8146)

Course Description

The rapid development of the Internet and electronic transactions over the last decade have radically changed the landscape of business activity and communication between business partners, businesses and customer-consumers, public administration and citizens. In addition, new developments around social networking issues as well as interaction through emerging communication channels have shaped a new landscape of innovation and business activity. Through a global web in combination with new technological infrastructures, business models and the development of artificial intelligence, opportunities are provided for new business activities, more effective management of inter-business processes, development of new services, direct interactive communication and personalization as well as processing transactions with business customers, consumers and citizens by electronic means. This specific course covers precisely these issues of Electronic Business (EB) through an interdisciplinary approach.

Bibliography

E. Turban, J. Lee, D. King, H.M. Chung «Electronic Commerce: A Managerial and Social Media Perspective", M. Giurdas Publications

Digital Content Management & Human Computer Interaction (8152)

Course Description

The course introduces students to the basic concepts of Human-Computer Interaction, explaining fundamental concepts such the role of user's mental model of interaction, usability design principles, evaluation methods and techniques. Going beyond the fundamentals, at the second part of the course, advanced methods for improving user experience are presented in detail, including analyzing web site data (using google analytics), recommendation algorithms, exploiting social media and SEO techniques to improve site's effectiveness.

In the first part of the course, the following concepts are analyzed:

- User Experience (UX)
- Cyberpsychology
- Interactivity and methods of measuring Perceived Interactivity
- Relation between actual and perceived interactivity
- Cognitive Psychology models that analyze the processing of information provided in the digital environment (Elaboration Likelihood Model)
- Subjective Differentiation in Digital Applications
- Usability principles and evaluation methods

In the second part of the course, the following are presented:

- Research methods in the Digital Environment and Digital Systems
- Introduction to experimental methodology using advanced scientific tools (e.g., eye-tracking)
- Information Architecture
- Design Thinking
- Principles of designing:
    - Websites
    - Applications based on the eSostac Plan and IMC (Integrated Marketing Communications)
    - The Digital Consumer – User

Learning Outcomes

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

- Have proven knowledge and understanding of issues in the human-centered design of digital systems (website, application, etc.) with the criterion of shaping effective communication between the User and the Computer. Their acquired knowledge is supported by advanced scientific textbooks and includes views arising from modern developments at the cutting edge of a specific field of knowledge.
- Be able to employ the knowledge and key theories in a manner that demonstrates a professional approach. They will be able to design advanced user experience in digital systems and interfaces. The ultimate objective is to create a database of loyal and systematically users, ensuring long-term sustainability and profitability of the website or application and the company overall.
- Have the ability to gather and interpret relevant data to form judgments that include considerations of related social, scientific, or ethical issues concerning human-oriented design of digital systems and effective interaction between humans and computers.
- Be capable of effectively communicating information, ideas, problems, and solutions related to interface design in the digital environment to both specialized and non-specialized audiences.
- Have developed the learning skills necessary to continue their studies with a high degree in areas such as User Experience, Cyberpsychology, Interactive Communication, and Research in the digital environment with advanced tools (such as eye-tracking), Information Architecture and Content Management.

Bibliography

- Albert, B., & Tullis, T. (2022). Measuring the User Experience: Collecting, Analyzing, and Presenting UX Metrics. Morgan Kaufmann.
- MacKenzie, I. S. (2024). Human-computer interaction: An empirical research perspective.
- Unger, R., & Chandler, C. (2023). A Project Guide to UX Design: For user experience designers in the field or in the making. New Riders.
- Albert, B., & Tullis, T. (2022). Measuring the User Experience: Collecting, Analyzing, and Presenting UX Metrics. Morgan Kaufmann.
- Norman, K. L. (2017). Cyberpsychology: An introduction to human-computer interaction. Cambridge university press.
- Norman, D. (2007). Emotional design: Why we love (or hate) everyday things.
- Norman, D. (2013). The design of everyday things: Revised and expanded edition.

Basic books:

- Dix, A., Finlay, J., Abowd, G., Beale., R., Επικοινωνία Ανθρώπου - Υπολογιστή. Μ. Γκιούρδας, Αθήνα 2003.
- Δημοσθένης Ακουμιανάκης, Διεπαφή Χρήστη-Υπολογιστή: μια σύγχρονη προσέγγιση, εκδόσεις. Κλειδάριθμος, 2006.

Product Design and Development (8166)

Course Description

This course will equip the students with basic understanding and fundamental knowledge about product design, new product development, and the management and strategic importance of these processes. The emphasis is on developing practical skills related to product management from the perspectives of industrial design and product engineering. The course has an interdisciplinary base, which resides on innovation and then integrates concepts and methods of aesthetics, semantics, design functionality, technology management, user-led innovation, manufacturing, environmental sustainability, ergonomics, organization and strategy. The aim is to propose a balanced blend of creative, technical and managerial aspects of the subject matter. The mix of pedagogical methods -lectures, exercises, cases, visits and group project- will instill an independent learning ability among the students, required to grasp and the complexity of product design and development.

Learning Outcomes

Upon completion of the course, students will be able to:

- Understand product design and development by combining creative thinking, aesthetic awareness, technological reasoning, customer/market understanding, and strategizing capability;
- Apply design thinking, design management and design execution skills;
- Manage and implement methods, tools and software for product design and product development management;
- Analyze and evaluate the importance of product design for innovation in general, e.g., in terms of human centered design, sustainable & green design and open innovation models;
- Analyse and understand how technology, manufacturing/industrialization, and market dynamics relate to product design and product development.

Bibliography

1. Ulrich, K.T., Eppinger, S.D. & Yang, M.C. (2023), Product Design and Development, TZIOLA Publications, 7th edition.
2. Electronic Articles from the Electronic Journals of the AUEB library: http://www.lib.aueb.gr/ that are announced on Eduportal.
3. Henry, K. (2012), Drawing for Product Designers, Laurence King
4. Lefteri, C. (2019), Making It: Manufacturing Techniques for Product Design, Laurence King; 3rd edition.
5. Liedtka, J. & Ogilvie, T. (2011), Designing for Growth: A Design Thinking Toolkit for Managers, Columbia Business School Publishing.

International Business Management (8180)

Course Description

The aim of this course is to address aspects related to the internationalisation of the modern firm and provide the students with a deeper understanding of its operation in the global marketplace. The basic principles of Management remain the same when a firm decides to go beyond its national boundaries, yet there is a need to be studied in the context of the new international markets. Foreign countries are different and, thus, the challenges that management face related to the internationalization of the firm are likely to be complex. When the firm expands in the international marketplace, it must adjust its internal resources and competencies and formulate its strategies to avoid threats in the international environment and exploit opportunities abroad that may shape the firm's growth worldwide. In addition, managers involved in international business activities are called upon to face challenges related to economic integration, the role of national policy, the existence of developed, emerging and emerging markets, and to harmonize / tailor their practices appropriately. Consequently, the overall purpose of the course is to understand the wider content of International Business from the point of view of the manager, the entrepreneur and the overall business team focusing on a series of decisions related to the internationalized firm as well as the domestic and international markets. Teaching and discussion are based on cases and examples of firms in all parts of the world.

Learning Outcomes

Upon completion of the course, students will be able to:

- Define the concept of internationalization and distinguish the reasons why businesses are now internationalizing at an unprecedented rate.
- Identify the key political, economic, and technological changes that are stamping current developments as well as the opportunities explored, and the challenges, risks and problems faced by managers of international/multinational firms
- Examine culture, values, cultural differences and generally all those cultural parameters that affect the working environment.
- Investigate the impact of globalization and local responsiveness on international management and

strategy.
- Analyse the strategies of internationalization followed by businesses
- Critically evaluate different market entry modes.
- Explain the nature and means of government intervention and propose ways of responding from business
- Examine the role of economic integration as well as the opportunities and the challenges faced by managers of international / multinational firms
- Critically assess the role played by developing countries and international emerging markets in international business

Bibliography

- Griffin, R.W., and Pustay M.W. 2018. International Business and Entrepreneurship. 8th Edition. Tziola and Sons SA Publications.

Data Analysis and Machine Learning (8184)

Course Description

- Data Processing and Cleaning
- Data Analysis
- Data Visualization
- Statistical Analysis, Statistical Significance, Statistical Power
- Machine Learning Methods and Models (supervised and unsupervised)
- Machine Learning Model Evaluation
- Hyperparameter Optimization
- Machine Learning Operations Workflow (MLOps)

Learning Outcomes

The course aims to provide a broad coverage of the field of Data Analytics and Machine Learning, through an applied approach using the Python language. Students will meet all stages related to Business Analytics and Machine Learning, from data cleaning and processing, to visualization, applied statistics, Machine Learning models, their evaluation, and their optimization, to issues of production flow of Machine Learning application processes and services. The broad coverage seeks to provide students with a comprehensive understanding of the subject, so that they can choose the most appropriate tool for each job, depending on the requirements.

This course is followed by and complemented through the seventh-semester course "Contemporary Trends in Artificial Intelligence."

Bibliography

- Christopher M. Bishop. Pattern Recognition and Machine Learning. Springer, 2006.
- Gareth James, Daniela Witten, Trevor Hastie, and Robert Tibshirani. An Introduction to Statistical Learning: with Applications in Python, Springer, 2023.
- Marc Peter Deisenroth, A. Aldo Faisal, and Cheng Soon Ong. Mathematics for Machine Learning. Cambridge University Press, 2020.

Trusted and Secure Software Development (8178)

Course Description

The weekly lecture schedule for the Spring Semester 2025 is listed below.

Week	Main topic of lecture	Practical part of lecture
1	Introduction & TLS – Basic Cryptography Principles (Encryption, Signatures)	Bash basics & demo
2	Software Security Basics (Vulnerabilities, patches, lifecycle)	
3	Application Security: Web Security (injection attacks, XSS attacks)	XSS Lab task (HW)
4	OS Fundamentals and Security Part 1: Access control and Isolation (Files, permissions, etc.) Making a container from scratch, Android access control	
5	OS Fundamentals and Security Part 2: Processes & Overflows	stack overflow demo
6	Stack overflow (cont.) + Network/Internet Basics	Traceroute demo
7	Network Security (attacks and defenses)	Morris Worm Lab task (HW)
8	Data & Communications Privacy (Surveillance, Mixnets, Tor)	Tor demo
9	The Human Factor: Passwords, Biometrics + networking basics revision	
10	Cryptocurrencies Basics and Bitcoin/Ethereum	
11	Other topics in Security (ML, Cryptocurrencies, HW)	PKI Lab task (HW)
12	Recap, Research in Computer Security, Questions	

Learning Outcomes

Developers are usually trained so that when they develop computing systems, they need to have the necessary functionality in mind without taking account of security. This results in many systems containing weaknesses that can exploit malicious users with particularly damaging consequences either: (a) for organizations that have these systems, and (b) for their users.

Students who will attend this lesson will first understand all the basic definitions of computer security. In addition, they will be able to directly recognize the weaknesses of a vulnerable system and will be able to recognize ways in which they can protect it. Finally, you will learn the most modern techniques for developing secure software, cryptographic protocols, and more generally everything you need to develop a reliable and secure system.

Bibliography

1. Anderson, R. J. (2020). Security engineering: a guide to building dependable distributed systems. John Wiley & Sons. Third Edition. Ελεύθερα διαθέσιμο στην ιστοσελίδα του συγγραφέα.
2. Payer, M. (2019). Software security: Principles, policies, and protection. Ελεύθερα διαθέσιμο στην ιστοσελίδα του συγγραφέα.
3. Stallings, William, and Lawrie Brown. Computer security: principles and practice. Pearson, 2015.

Final Year Project (8149/fall semester or 8140/spring semester)

Course Description

In the last year of their studies, students can select a research area of their interest and together with a supervising faculty member, they can undertake an academic or practical project which is relevant to the subject of their studies.

Learning Outcomes

Upon completion of the course, students will be able to:

- Collect and examine the literature of a research area.
- Cooperate with the supervisor.
- Organize their project and decompose it into smaller tasks.
- Manage their time effectively.
- Take the lead of the work and work independently

Bibliography

Determined based on the scope of the project.

7th SEMESTER

Ethics, Responsibility and Governance (8182) FROM ACADEMIC YEAR 2026-2027

Course Description

The course examines the concepts of business ethics, corporate responsibility and corporate governance in a constantly changing socio-economic and institutional environment. The aim is to equip students with the theoretical foundations and practical tools required to understand and implement responsible and ethically sustainable practices in the private, public and non-profit sectors. This is particularly important given that in modern times, society gives businesses a license to operate and increasingly requires businesses to demonstrate ethical and responsible behavior. Employees expect fair treatment and consumers respect for their rights. Similarly, other stakeholders are pushing for transparency and accountability. To a certain extent, businesses have understood these new conditions, have incorporated corresponding practices into their operations and have redefined the way they make decisions. However, ethical dilemmas arise daily, as businesses try to harmonize their profitability with the social and ethical aspects of their operation. Ethical dilemmas are also raised by modern technological developments since the development and use of new technologies such as artificial intelligence, the use of big data, etc. raise questions regarding the human-machine relationship but also the responsibilities that the individual and the business are called upon to assume in the face of new data. Consequently, the relationship between Business, Ethics, Responsibility and Governance is worth discussing both in society and in the narrower environment of the university.

The course incorporates:

1. basic philosophical currents of ethical thought (deontology, utilitarianism, justice, aretaic ethics),
2. contemporary approaches to corporate social responsibility (CSR),
3. environmental, social and intergovernmental criteria (ESG),
4. as well as principles of corporate governance.

Learning Outcomes

Upon completion of the course, students will be able to:

1. Understanding the role of ethics in business. Recognizing ethical issues within businesses
2. Applying important concepts and theories (e.g. utilitarianism, deontology, etc.) regarding ethical values to solve business issues
3. Understanding the benefits that arise from ethical business behavior and the connection with the concepts of competitiveness and sustainability
4. Evaluating individual behaviors within the business context using theoretical models
5. Understanding the concept and importance of social responsibility and the requirements for its integration into business strategy
6. Understanding the concept and importance of Corporate Governance. Familiarity with the frameworks and regulations governing Corporate Governance
7. Gaining a comprehensive understanding of contemporary issues related to management, responsibility and corporate governance
8. Understanding of contemporary ethical dilemmas raised by the development of new technologies (artificial intelligence and ethics, big data and ethics, etc.)

Bibliography

- Haski-Leventhal Debbie (Επιμέλεια Κ. Μανασάκης, Γ. Θερίου). 2018. Στρατηγική Εταιρική Κοινωνική Ευθύνη, Εκδόσεις Τζιόλα & Υιοί Α.Ε.
- Θανόπουλος Γ. 2003. Επιχειρηματική Ηθική και Δεοντολογία, Εκδόσεις Interbooks.
- Kaplan Sarah. 2019. The 360 Corporation, Stanford Business Books.

Financial Engineering (8163)

Course Description

Financial Engineering provides the means of implementing financial innovation using financial instruments like forwards, futures, swaps and options. Usual applications include the restructuring of corporate or investor cash flows to achieve tactical and strategic targets, with particular emphasis on risk management. Financial Engineering is at the forefront of innovation and development in financial markets, granting private investors, corporations and institutions almost complete flexibility in transforming existing cashflows into new cashflows with different quantitative and qualitative characteristics.

Learning Outcomes

This course aims to provide the tools, methodologies and skills necessary to understand, implement and innovate in this very active environment. Real case studies will be presented, demonstrating practical applications of the material taught.

Bibliography

Hull, John C. (2009) Options, futures, and other derivatives (7th Ed.), Prentice Hall

Stochastic Modeling & Simulation (8167)

Course Description

- Introduction to Game Theory
- Stochastic Models in Operations Research
- Modeling of Discrete Systems
- Activity Cycle Diagram
- Simulation Methodologies
- Input Analysis
- Simulation and Industry 4.0Simulation Program

Learning Outcomes

Upon successful completion of the module "Stochastic Modelling and Simulation," students will have acquired both basic and advanced knowledge of the techniques of stochastic modelling and simulation. Specifically, they will be able to understand and apply methods of modelling and stochastic processes, such as Markov chains and Poisson processes. Furthermore, students will develop skills in using specialised simulation software (Simul8), be able to design and conduct simulation experiments, and analyse their results to make decisions under uncertainty. They will also acquire critical thinking and problem-solving abilities, enabling them to formulate and evaluate stochastic models in various management fields

Bibliography

Stochastic Models in Operations Research (2024), Burnetas, Apostolos, Economou, Antonis, https://repository.kallipos.gr/handle/11419/12645?&locale=el

Combinatorial Optimization (8143)

Course Description

The course deals with theory, algorithms and applications of discrete (also known as combinatorial) optimization with an emphasis on problems regarding flows, paths and matchings on graphs. More specifically, the course presents algorithms for the problems of shortest path, maximum flow, minimum-cost flow, maximum-cardinality and maximum-weight matchings (mostly regarding bipartite graphs) and, last, stable matchings and b-matchings on bipartite graphs.

Apart from solving such problems using specialized combinatorial algorithms, the students are also expected to formulate applications and real-life problems such as flow, path or matching problems on graphs. In addition, this course introduces general methods for discrete optimization problems that can be modeled as Linear Integer Programs, i.e., Branch-and-Bound and Branch-and-Cut.

The purpose of this course is the understanding of algorithmic design specifically for discrete optimization algorithms defined on graphs and integer programming methods. Apart from understanding all related notions, the purpose is to investigate the application of such algorithms (i.e., algorithms for paths, flows and matchings) on real-life problems.

The course material includes the following topics:

- Network Flows and Integer Programming
- Shortest-path algorithms: Dijkstra, Bellman-Ford, Floyd-Warshall
- Maximum-flow and minimum-cost flow algorithms
- Matching algorithms in bipartite graphs: maximum-cardinality matching, maximum-weight matching, stable matching and stable b-matching
- Applications modeled as flow problems: project management, job assignment to machines, distinct and restricted representatives, capital allocation, etc
- Integer programming: branch and bound algorithms, Balas' additive algorithm, branch and cut algorithms
- Integer programming applications
- Trees: properties, traversal algorithms, minimum spanning tree algorithms, Steiner trees.

Learning Outcomes

Upon completion of the course, students will be able to:

- Describe and employ the fundamental concepts, the basic theorems of Combinatorial Optimisation.
- Perform the calculations for specific methods or algorithms of Combinatorial Optimisation for problems of reasonable scale, e.g., steps of max-flow algorithm, steps of integer programming.
- Model real-life problems arising from a variety of applications as Combinatorial Optimisation problems and identify the appropriate optimisation method or algorithm.
- Comprehend the proofs of relevant theorems and the broader mathematical foundations of Combinatorial Optimisation, use specific theorems (e.g., max-flow min-cut theorem) to resolve more effectively relevant problems and be able to explain and reproduce the most basic among these proofs.
- Study autonomously and in depth the current literature from academic journals and books of Combinatorial Optimisation, even in areas that marginally fall within the content of this course.

Bibliography

- Textbook (lecture notes): P. Miliotis, I. Mourtos: Discrete Optimisation, AUEB edition (in Greek)
- Additional textbooks, available in AUEB library
- Integer and combinatorial optimization, Wolsey, Laurence A., Nemhauser, George L., New York: Wiley 1988
- Combinatorial optimization: networks and matroids, Lawler, Eugene L., New York: Holt,
- Surveys in combinatorial optimization, Martello, Silvano, Amsterdam: North-Holland 1987
- Geometric algorithms and combinatorial optimization, Grotschel, Martin, Lovasz, Laszlo, Schrijver, Alexander, Berlin: Springer 1988
- Combinatorial optimization: algorithms and complexity, Papadimitriou Christos., Steiglitz, Kenneth Englewood Cliffs, N.J.: Prentice-Hall 1982
- Additional notes, slides and exercises are available on the course website

Business Analytics & Personalization Technologies (8183)

Course Description

The vast amount of available data produced by the interaction of users of online (and offline services) with systems and applications provides unprecedented opportunities to analyze, understand and predict human behaviour to deliver advanced and personalized services. Recently, the domain of Behavioral Analytics emerged as a response to the above need focusing on the exploitation of big data being produced mainly by the interactive online behaviour of users with fundamental goal to support users in the process of finding relevant and interesting information and at the same time to provide businesses the means to understand the needs of the customers predicting their future behaviour.

Learning Outcomes

Upon completion of the course, students will be able to:

- Understand human behavior modeling
- Understand data analysis algorithms
- Understand of personlaization applications in the business environment
- Develop skills for using data analysis tools

Bibliography

- G. Lekakos, "Recommender Systems", Course Notes
- Jannach, D. Zanker, M., Felfernig, A., "Recommender Systems: An Introduction", Cambridge University Press, 2011
- Ricci, F., Lior Rokach, L., Shapira, B., Kanto, P., "Recommender Systems Handbook", Springer, 2010
- Yu, K., Grentzel, U., Zanker, M., Persuasive Recommender Systems: Conceptual Background and Implications, Springer, 2013
- Zafarani, R., Abbasi, M., Liu, H, "Social Media Mining", Cambridge University Press, 2014
- Aninash Kaushik, Web Analytics 2.0, Wiley Publishing, 2010

Information Resource Management (8139)

Course Description

In this course, students learn to appreciate the opportunities and challenges from the use of ICTs, though in-class analysis and discussion of case studies from the international context, so that they can identify and manage similar situations efficiently when encountered in practice.

Students in this advanced course study how information systems in organizations can be managed so that information resources are efficiently used.

The course material includes the following thematic areas:

1. Information sharing in organization
2. Change management in the development and implementation of information systems (IS) in organizations
3. Information resource management and IT department governance
4. Broader information resource management issues (e.g. privacy) and their societal implications
5. Strategic value and international growth trends for the IT sector

Learning Outcomes

Upon completion of the course, students will be able to:

- Appreciate the challenges and main causes of failure in the use of information systems in organisations.
- Utilize the appropriate knowledge background to understand the issues that management faces concerning information systems.

- Understand the role of information systems in the context of a broader set of systems and relations withing business and society.
- Develop the skill of understanding and analysing the current academic literature on information systems.

Bibliography
It is published on the course portal (edu.dmst.aueb.gr)

Digital Marketing (8150)

Course Description
The course includes the following sections:
- Course Description
- Introduction to Digital Marketing
- Digital Marketing Research
- Electronic Retailing and Digital Marketing
- Consumer Behaviour and Digital Marketing
- Integrated Digital Marketing Communications
- Electronic Customer Relationship Management (e-CRM)
- Strategic Digital Marketing Planning
- Digital Marketing and Sales
- Innovative Applications and Trends in Digital Marketing
- Special Topics in Digital Marketing

Learning Outcomes
Upon completion of the course, students will be able to:
- Obtain the necessary conceptual background in the Digital Marketing domain adopting an interdisciplinary approach.
- Recognize the research opportunities arising in Digital Marketing and obtain experience in designing and executing relevant research designs.
- Understand the basic usage dimensions of Digital Marketing applications in organizations and the main issues related to their effective exploitation.
- Obtain familiarity with the capabilities offered by Information Systems for the implementation of activities in the context of Strategic Marketing Planning.

Bibliography
- Title: Electronic Marketing (in Greek), Authors: Siomkos, G. and Tsiamis, I. Publisher: Broken Hill Publishers Ltd, Year of Publication: 2019 (2nd Edition).
- Title: Digital Marketing – From Theory to Practice (in Greek), Authors: Vlachopoulou, M., Publisher: Rosili, Year of Publication: 2019 (1st Edition).

Personal and Leadership Skills Development (8135)

Course Description

Section 1: **Self-diagnosis- Self-assessment**

Personality	Assertiveness
Control Center	Inter-personal style
Self-Awareness	Interpretation of the personal profile
Interpersonal Needs	

Section 2:	**Learning – Learning Styles**	
	Learning-Model instrument	Case study
	Cognitive / Learning Style	
Section 3:	**Anxiety – Stress Management Techniques**	
	State-Trait Anxiety	Case study
	Stress Management Strategies	
Section 4:	**Dynamics and Group Processes**	
	Creating Groups	The Desert Survival Problem
	Tower of Team Power	Case study
Section 5:	**Conflict and Negotiations**	
	Personal Negotiation Style	
	Role-Playing in Negotiation	Case study & Role-Playing
Section 6:	**Persuasion and Influence**	
	Influence styles	Case study
Section 7:	**Development of Leadership Skills and Emotional Intelligence**	
	Personal Leadership Style Assessment	Emotional Intelligence Assessment
	he 4 Dimensions of Emotional Intelligence	Case study & Role-Playing
Section 8:	**Career Strategy**	
	Job Search Strategies	Negotiating...
	Writing a CV	Building your career
	Succeeding in the interview	Uses of the Internet in job searching and finding (e.g. LinkedIn)

Learning Outcomes

To be successful in the modern, constantly changing, organizational environment, the modern manager is required to possess abilities that are much broader than the narrowly defined technical knowledge and skills. The successful manager is no longer the one who possesses knowledge but the one who possesses the appropriate personal abilities and which he can use appropriately both with his colleagues and with himself. In this context, the course “Development of Personal and Leadership Skills” aims to help participants, first, to record, analyze, discuss their personal abilities and then to “improve” them, as much as possible, within a safe environment through a series of processes with a very strong element of interaction. In this way, participants will cultivate skills that will be particularly useful to them both in the search and development of their professional career and development.

Bibliography

- De Janasz Suzanne C., Dowd Karen & Schneider Beth. Διαπροσωπικές Ικανότητες στους Οργανισμούς. Αθήνα: Εκδόσεις Τζιόλα
- Βακόλα, Μ. & Νικολάου, Ι. (2019). Οργανωσιακή Ψυχολογία & Συμπεριφορά. 2η έκδοση, Αθήνα: Εκδόσεις Rossili.

Advanced Topics in Strategy and Innovation (8169)

Course Description

Transformational change and innovation are key phenomena in today’s business environment. In this course we examine how and why firms strategically change and innovate. The aim is to provide students with the concepts and methodologies necessary to understand the complexities involved in these phenomena. We also focus on some key aspects of organisational life such as the organic link between innovation and strategy and the capacity of self-reflection during the process of innovation.

Learning Outcomes

Upon completion of the course, students will be able to:

- The changing environment and the ideal firm architecture
- Motors of change: Archetypal theories of change
- How do organizations adapt? The tempo of change
- Strategic Transformation from a practical perspective
- Innovation and Competitiveness
- Innovation processes

Students are expected to develop the necessary skills to allow them to design and implement strategic change and innovation initiatives

Bibliography

- Book [68389614]: Strategic Innovation Management, Tidd Joe, Bessant John
- Book [59391294]: Strategic Management of Technological Innovation, Schilling A. Melissa

Distribution and Transportation Systems Planning (8133)

Course Description

The contents of the course cover the following thematic sections:

- Transport Systems: Components, structure and environment of a transport system, characteristics of supply and demand, performance measurement criteria and impacts of the operation of the transport system (energy, environment, safety).
- Transport Systems Planning Problems: Road Freight Transport Service Network Design Problem. Ship Fleet Composition Problem for the Provision of Regular Sea Transport Services (Liner Shipping). Strategic Traffic Planning Problem at Airports. Railway Transport Planning Problems
- Distribution Systems: Introductory concepts, definition of distribution systems, categorization of distribution systems, Distribution Centers and Warehousing. Case Studies.\
- Distribution Systems Programming Problems: Multiple product distribution problem with direct shipments through a Transportation Network. Vehicle Scheduling and Routing Problem. Warehouse Location Problem. Warehouse Operations Programming Problems. Applications and Case Studies.

Learning Outcomes

Upon completion of the course, students will be able to:

- Understand the environment, structure, and operation of a transportation system.
- Understand the functions of distribution systems.
- Understand the characteristics of transportation and distribution system design problems.
- Develop mathematical models for the design and programming of distribution and transportation systems.

Bibliography

- Gianpaolo Ghiani, Gilbert Laporte, and Roberto Musmanno, “Introduction to Logistics Systems Planning and Control”, John Wiley & Sons, Inc., 2004.
- Odoni, A., R.C. Larson, “Urban Operations Research”, Prentice Hall, 1981. (available online at http://web.mit.edu/urban_or_book/www/book/).
- Joseph Sussman (Επιμέλεια-Μετάφραση: Ευστ. Παπαδημητρίου, Ορ. Σχινάς), “Εισαγωγή στα Συστήματα Μεταφορών”, Εκδόσεις Σταμούλη, Αθήνα, 2003.

Enterprise Resource Planning Systems (8159)

Course Description

The purpose of the course is to understand issues related—directly or indirectly—to Enterprise Resource Planning Systems (ERP).

The course has both theoretical and practical orientation, aiming to familiarize students with related theoretical concepts on the one hand and the use of software solutions (SAP & NAV ERPs) that are globally widespread and adopted by companies and organizations across all economic sectors (industries) on the other.

Enterprise Resource Planning Systems (ERP) are a compact set of software applications that support a wide range of business activities and functions and serve as a business tool for controlling, monitoring, and coordinating operations in the central and remote facilities of a company. They achieve data centralization, the unification and integration of all a company's applications, and the redesign of business processes, aiming to optimize operations, increase productivity, and gain a competitive advantage using new information technologies. For modern businesses in the Information Society, ERPs are the core pillar of the transactional information infrastructure that enables companies and organizations to respond to the demands and challenges of economic activity within the framework of globalization.

The course is structured into the following units:

- Introduction to ERP systems
- Business Processes
- ERP Systems Implementation
- ERP Technological Infrastructure
- Production Planning and ERP
- Financial Management
- SAP ERP Introduction & case studies
- Microsoft NAV

The course content includes the following main thematic units:

- The product and the services it offers. The evolution of Enterprise Resource Planning (ERP) Systems. Technological overview with emphasis on modern approaches to system architecture. Representation of business events in database structures. The functionality offered by Enterprise Resource Planning (ERP) Systems. ERP systems as integrated information systems that support business processes.
- The implementation and application project. ERP systems as a turn-key project. ERP solution selection. Implementation methodologies. Critical success factors.
- The evolution of a 'live' system.
- The transition to E-Business, ERP software platforms and communities. ERP as a new channel for business communications. Extension of ERP systems for coordination of suppliers and customers of businesses. ERP software platforms and communities.

Learning Outcomes

The expected learning outcomes, upon completion of the course, are the acquisition of knowledge in the following key areas:

- The "ERP" product and the services it offers supporting business processes
- Factors and parameters of ERP implementation and application projects
- The evolution of ERP systems
- ERPs, e-business, ERP software platforms and communities: Contemporary trends in transition and transformation.

Bibliography

- Book: Enterprise Resource Planning Systems / Ioannou G.

Business Intelligence and Data Engineering (8137)

Course Description

Data warehousing, decision support, OLAP and data mining, what many people often call Business Intelligence (BI), has reached a maturity height with an abundance of systems, platforms and methods. It has evolved from a domain-specific area for large and highly sophisticated corporations, to an essential component of any modern business entity or institution. Although the field of BI is relatively new, the concept of using data to support decision-making is not. Performing complex data analysis and knowledge extraction over large volumes of data exists since the inception of information systems, in the form of executive information systems, statistical packages and artificial intelligence prototypes. The crucial difference between that era and today is the "democratization" of data analysis: by natively equipping DBMS with analytical capabilities and by providing practitioners with expressive data models, powerful integration tools and intuitive query languages, BI research brought to the masses clean, integrated and aggregated information in a timely manner.

Learning Outcomes

Upon completion of the course, students will be able to:

- Understand the benefits of data analysis for an organization
- Understand the different phases of data analysis
- Design the architecture and schema of a data warehouse
- Implement ETL processes in a data warehouse environment
- Create data cubes using a data warehouse
- Create multidimensional analysis/OLAP reports
- Use data visualization tools to produce dashboards
- Know basic data mining concepts: categorization, clustering, association rules
- Know NoSQL data management systems and their use in specific applications
- Understand what data streams are and how they are used for real-time analysis
- Use commercial or open source DB systems and visualization tools for all the above.

Bibliography

- Multidimensional Databases & Data Warehousing, by Christian S. Jensen, Torben Bach Pedersen, and Christian Thomsen.

Contemporary Trends in Artificial Intelligence (8195)

Course Description

- Neural Networks
- Neural Network Architectures
- Attention and Transformers
- Large Language Models (LLMs)
- Productive Artificial Intelligence
- Flow of Artificial Intelligence Application and Service Processes
- Issues of Ethics, Bias, Discrimination, Impartiality, and Justice Interpretability
- Security and Artificial Intelligence

Learning Outcomes

The course aims to familiarize students with current trends in Artificial Intelligence, through an applied approach using the Python language. The course will cover topics ranging from neural networks and their architectures to Large Language Models, Productive Artificial Intelligence, issues of production flow of AI application and service processes, issues of bias, discrimination, impartiality, and justice, interpretability, and security issues related to Artificial Intelligence. The broad coverage aims to provide students with a comprehensive understanding of current trends and their implications for production, beyond the exaggerations surrounding the field.

This course follows and complements the 6th semester course “Data Analysis and Machine Learning”.

Bibliography

- Christopher M. Bishop and Hugh Bishop. Deep Learning: Foundations and Concepts. Springer, 2023.
- Ian Goodfellow, Yoshua Bengio, and Aaron Courville. Deep Learning. The MIT Press, 2016.
- Solon Barocas, Moritz Hardt and Arvind Narayanan. Fairness and Machine Learning: Limitations and Opportunities. The MIT Press, 2023.
- Arvind Narayanan and Sayash Kapoor. AI Snake Oil: What Artificial Intelligence Can Do, What It Can't, and How to Tell the Difference. Princeton University Press, 2024.
- Christopher Molnar. Interpretable Machine Learning: A Guide for Making Black Box Models Explainable. Christoph Molnar, 2025.

Investment Analysis (8131)

Course Description

Knowledge of how capital markets work is essential to decision-making that involves raising and investing capital. Topics such as the risk-return relationship in investments, the structure of international money and capital markets, the efficient market hypothesis and the use of modern financial instruments are covered. Students are expected to have basic knowledge of mathematics, statistics and finance.

Learning Outcomes

The purpose of the course is to introduce the fundamentals of capital market theory and the basics of asset pricing and portfolio management. Real case studies will be presented, demonstrating practical applications of the material taught.

Bibliography

P. Petrakis (2010) Investment Evaluation QUAESTOR publications Sole Proprietorship Ltd.

E learning and Knowledge Management (8151)

Course Description

The course comprises two units.

Unit 1: E-Learning

- Workplace learning, employee performance and the role of technology: concepts, methods and tools
- E-learning platforms, technologies, and instructional content development tools
- Methods for digital instructional design
- Issues of eLearning Implementation and Management

Unit 2: Knowledge Management

- New Challenges – New Organizational Forms.
- Knowledge Management: Definitions of notions, measuring intellectual capital, Types and forms of knowledge, Knowledge objects, Knowledge and competitiveness, Overview of tools for knowledge management.

- Knowledge and Innovation

Learning Outcomes

This course offers an overview of the most recent trends in learning and knowledge management in companies and organizations. Students will be introduced to strategies, methods and technologies of organizational learning and knowledge management, helping them to develop analytical, development and judgmental skills. Students will be able to relate organizational and technological choices to performance improvements in organizations in the context of changing organizational environments. Practical skill in the implementation of e-learning programs and systems are also emphasized.

The course comprises two units; (1) E-Learning and (2) Knowledge Management.

In the first unit, students are introduced to concepts of organizational and workplace learning, training in the context of human resource development, and performance management. Methods and tools for digital instructional design are explained and then applied in practice by students in their course assignments.

In the second unit, after successfully completing the course, students will be able to:

- Identify, describe and recognize different types of knowledge and different forms of knowledge in an organization.
- Explain how types and forms of knowledge can be managed for organizational effectiveness and competitive advantages.
- Combine enablers and knowledge management tools to design effective knowledge management structures.
- Compare and evaluate approaches and knowledge management and KM systems using case studies.

Bibliography

- Pulymenakou A. (2013) 'Electronic Learning'. University Notes, «Athens University of Economic and Business»
- Soderquist, K.E., Brachos, D. & Kinti I. (2014), "Knowledge Management in Organizations: Concepts, Practices and Tools in the Knowledge Economy", University Notes, «Athens University of Economic and Business»

Digital Product and Service Management (8197)

Course Description

- Apply techniques of: design thinking, product roadmap, agile development, production and change tracking, organization and coordination of development teams and management of digital products and services.
- Analyze, design and implement processes for designing, developing and managing a digital product/service.
- Use digital tools that support the design, development, delivery and management of digital products and services.
- The course covers Design, Develop, Manage, DDM triptych which can be structured into two components, Design, Develop (DD), and Deliver, Manage (DM).

The DD component will cover:

- Design of digital products and services.
- Design Thinking.
- Requirements/user acceptance research.
- Product Roadmap
- Regulatory compliance, such as GDPR, AI regulation, Digital Markets Act.

The DM component will cover the organizational, procedural, and administrative issues related to the DD component, such as:

- Organization and management of project teams for the development of digital products and services.
- Agile Development in practice.
- Continuous Integration / Continuous Delivery (CI/CD) of digital products and services.
- Organization of the integration of products and services into production.
- Organization of their evolution and maintenance from the moment of integration into production until final retirement.
- Scheduling / management and scheduling of meetings.
- Design of support mechanisms.
- Transition of services from development to production
- Feedback mechanisms,
- Special issues of IT project personnel management
- Production Engineering / Site Reliability Engineering: principles, practices and management, DevOps and issues of Software, Platform and Infrastructure as a Service
- Use of cloud computing services

The final grade for the course will be based on 70% group work and 30% final written exams. In the assignment, students will be asked to design a realistic product and service and proceed to the implementation of a Minimum Viable Product (MVP). In addition, they will have to design all the necessary processes involved in the creation of products and services, their integration into production, and their monitoring and maintenance. They will have to demonstrate these processes as well as all the relevant tools that will be used (team communication, project management, task allocation, ticketing, helpdesk, monitoring). In the written exam, students will be asked to demonstrate an understanding of terminology, concepts, as well as an in-depth global understanding of the subject.

Learning Outcomes

Software - apart from the core of information systems - is treated in today's economy as a product and/or service. Digital products and services are constantly evolving to support the changing needs of their users and beneficiaries and to maintain relevance to changes in the environment in which they are integrated.

Upon completion of the course, students will be able to:

- Understand the specificities and challenges of developing and managing digital products and services through their experiential involvement in real projects in the field.

Bibliography

- Kittlaus, H. B. (2022). Software Product Management: The ISPMA®-Compliant Study Guide and Handbook Second Edition, Springer Berlin Heidelberg (ISBN 978-3-662-65115-5).
- Lawrence, A., Hormess, M., & Schneider, J. (2018). This is Service Design Doing: Applying Service Design Thinking in the Real World: a Practitioners' Handbook. O'Reilly Media, Incorporated. (ISBN 978-1-491-92718-2)
- AXELOS Global Best Practice (2019). ITIL® Foundation, ITIL 4 Edition, (TSO) - IT service management (ITSM), The Stationery Office (Great Britain) (ISBN 9780113316076)

8th SEMESTER

Internship Thesis (8156)

Course Description

The course consists of two parts:

Internship: The Internship is an obligation of the students during the 8th semester of the Department's studies in the context of which the students are employed in a real business environment utilizing and completing the knowledge they have acquired. During the Internship, the students familiarize themselves with the operations, practices and administrative systems applied by the company and participate in them, under the guidance of an administrative supervisor appointed for this purpose. Alternatively, the students are involved in a specific and prescribed project by the company, which has been agreed with the internship coordinators and falls within the Department's academic subjects. There is also the possibility of students participating in the endeavour to develop a new business activity that is of interest to a company.

Thesis: It refers to the preparation of a research paper on a topic determined by the student himself in consultation with his/her academic supervisor. The thesis concerns the research and bibliographic review/analysis of a contemporary topic within the academic subjects covered by the Department's academic programme. It is advisable that the subject of the Research paper is related to the subject of the Internship, although this is not mandatory.

The supervision of each intern's internship is carried out by a professor of the Department (academic supervisor). As part of the course, 4-hour seminars are held every week during which the lecturers give directions, comments, and observations regarding each intern's Internship/Thesis.

Learning Outcomes

Upon completion of the course, students will be able to:

- gained work experience for their later professional career
- become familiar with the real operations of a modern business, the "transition" from theory to practice, as well as the formation of a relationship with the company and its employees,
- developed skills for conducting field research
- developed skills for writing a research paper
- acquired special knowledge in one or more thematic areas of Management Science & Technology

Digital Innovation and Entrepreneurship (8164)

Course Description

- The course includes topics such as:
- Business models of e-business
- Technological and functional developments in digital media
- Design innovation in business services / products, processes etc.
- Strategy for innovation and digital entrepreneurship
- Design and development of a business plan
- Development and funding new businesses
- Critical success factors in the running of new business
- Market exploration and Opportunity finding from new Digital Services
- Intro to Advanced Digital Technologies (IoT Drill Down)
- Prototyping (Software and Hardware) and User feedback evaluation
- Supporting functions (Marketing, Legal, Sales, Pitching)

Learning Outcomes

E-Business offers the opportunity for increasing the competitiveness of enterprises (with innovative business models, with personalized services, business analytics etc.) and the creation of new enterprises exploiting the potential of digital media (eg internet). Innovation is also an essential tool in the modern business environment for increased productivity, value added impact, international competitiveness and sustainable development. This course covers the above two trends (ie the connection of digital services and new entrepreneurship) through an interdisciplinary approach and with a focus on State of Art technologies.

The learning outcomes of the course in relation to the three axis (knowledge, Skills, Competences) are as follows:

- Learning Outcomes relevant to Knowledge: Upon successful completion of the course, students will be able to: Recognize and Identify the main components and critical success factors in e-business and digital entrepreneurship with a focus on knowledge-intensive start-ups. Acquire specialized knowledge of technical and organizational issues in digital business. To be able to understand the potential of innovation and strategy in dynamic new entrepreneurship. To acquire the skills to design and develop innovative technological services/products and develop an integrated business plan
- Learning Outcomes relevant to Skills: Upon successful completion of the course, students will be able to: Utilize the above knowledge outcomes in the creation of innovative business models/services/businesses in a real-world environment with an emphasis on the use of new technologies. Design different business models in digital business. To design and implement prototypes with or without the use of code in applications and hardware (Arduino HW prototypes) and perform user and market satisfaction research.
- Learning Outcomes relevant to Competences: Upon successful completion of the course, students will be able to: Evaluate the digital services and hardware prototypes they have created. Judge their working team, the business processes necessary to bring the new digital service to market. To infer the choice of the strategy behind a digital service. To identify dynamics for the creation and potential path of such an application.

Bibliography

- Osterwalder και Y. Pigneur “Business Model Generation”, J. Wiley, 2010.
- K. Keely “Ten types of Innovation”, J. Wiley 2013.

Big Data Management Systems (8170)

Course Description

The emergence of sophisticated web applications, the proliferation of social networks, the massive deployment of sensor networks and other data-producing applications have led to an exponential growth of data volumes, unforeseen just few years ago. At the same time, the incorporation of a variety of data formats (structured, semi- and un-structured) into mainstream data analysis, along with the velocity aspect of modern applications, revise the fundamental aspects of data management. The era of big data mandated a new generation of data management systems: not-necessarily relational, focusing on fault-tolerance and availability, involving cloud-based computations, distributed in nature and exploiting large main-memories. The goal of this course is to delineate the challenges in managing big data, present the various systems that have emerged for this purpose and provide representative implementations and applications. The following systems will be presented: MapReduce/Hadoop, Redis, MongoDB, Neo4j, Azure Stream Analytics.

Learning Outcomes

The use of data in making correct, valid and timely decisions has become a “must-have” success factor for most modern businesses and organizations. At the same time, in recent years, with the development of new technologies and applications – such as the spread of social networks, the extensive use of smart phones, the installation of sensors, etc. – the volume and form of data has changed dramatically: we now have data

volumes of petabytes and exabytes and in text, audio, video, images formats. The need to manage and exploit this data has led to the development of a new generation of systems, models and programming tools – which are still in their infancy – such as: Map Reduce, Hadoop and its ecosystem, NoSQL, etc., technologies that allow for parallel processing of data on a large scale and in a fault-tolerant manner. The purpose of this course is to present the basic principles of these systems and how they operate.

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

- understand the concept of "data analysis pipeline", the various phases of this pipeline and the implementation requirements of each phase,
- use HDFS to store/retrieve data and develop MapReduce jobs to answer specific queries; have a first encounter with the Hadoop ecosystem
- use a key-value system like Redis through a programming language like python or java to support applications requiring such a system,
- use a document store such as MongoDB and write queries involving JSON documents,
- use a graph database like Neo4j and write queries in a query language over graph databases like Cypher,
- define simple continuous queries over data streams, using an extended SQL query language and a stream engine, such as Stream Analytics of Azure.

Bibliography

Course notes, online courses

4 GENERAL INFORMATIONS FOR STUDENTS

4.1 Information about the department

4.1.1 The e-learning Portal of the Department (https://edu.dmst.aueb.gr/)

The Department of Management Science and Technology has, since the academic year 2013-2014, its own educational portal - Eduportal, based on the Moodle (Modular Object-Oriented Developmental Learning Environment) course management system, which is one of the most widespread, worldwide, learning management systems (Learning Management Systems -LMS), which is constantly evolving and incorporating new features.

The Department made the choice of this platform because it offers significant benefits both to the system administrator and to its users (teachers and students). More specifically the benefits include the following:

To the administrator:

- It is freely provided as open source software and can run on any system that supports PHP and has the ability to integrate with many types of databases (especially MySQL).
- Provides the possibility of parameterizing the form and the allowed/desired functions as many different modules can be added.
- Provides multiple member registration methods with multiple security levels, registration management tools and the ability to create roles (teacher, assistant, student, etc.).
- It gives the possibility to create, edit, create copies (backup), restore (restore), restart (reset), import (import) the courses and the controlled registration of the members in them.
- It provides the possibility of reports for every action of any user.

To the teacher:

- Choice of the course's presentation format, according to his/her requirements (thematic, weekly, etc.).
- Insertion of various sources of information (documents, multimedia, links, etc.).
- Creation of individual and group assignments, even with the possibility of using the Turnitin tool.
- Assessing students through quizzes or other methods.

- Management of students in groups and assigning tasks to assistants.
- Communication with students (forum, chats, messaging, blogs) and multiple modules that remind of obligations, display general announcements, etc.

To the student:
- Personal profile creation.
- Ability to self-enroll in courses to gain access to all course material.
- Electronic submission of assignments and display of their score or any feedback and comments from the teachers.
- Reminders about various course obligations, calendar support and sending announcements to their email.
- Communication with the teachers and the other members of the courses, even in real time.

Now the platform hosts a total of 76 courses, of which 59 are from the undergraduate study program, 7 are offered to Erasmus students and 10 are from the Department's doctoral program. Active users (last semester) amounted to approximately 2500, of which 60 are teachers (faculty members and assistants) and the rest students. In addition, several users log into the system as guests with a specific password and can view the course materials but do not participate in their activities. Finally, it should be noted that the use of the system has also been scaled up in the postgraduate programs of the Department.

4.1.2 Erasmus+ student exchange program

Goals and Operation of the Program
The Erasmus+ program is an action on European cooperation in the field of higher education. It includes:
- Organized student exchanges for recognized periods of study and / or internship,
- The European Credit Transfer and Accumulation System (ECTS),
- Mobility and exchange of teaching staff,
- Language preparation for outgoing and incoming students and staff,
- Intensive short-term teaching programs,
- Activities to develop joint programs on all levels of study,
- Language studies combined with other academic scientific disciplines,
- University collaboration projects on issues of mutual interest (Thematic Networks),
- Preparatory visits for future cooperation activities,
- Application of open and distance learning methods.

In order to support mobility costs (travel costs, language preparation and cost of living), the European Commission grants scholarships to students selected to participate in the Erasmus Program for a period of 3-12 months of recognized studies abroad.

The European Commission encourages experiences abroad as a means of improving the quality of academic cooperation for the benefit of students and educational institutions. Studying and practicing abroad is an invaluable experience. It is not only the best way for the student to enrich his/her knowledge of other countries, ideas, languages and cultures, but also a very important part of the development of professional and academic career prospects.

Students who are interested in studying abroad will look for:
- Curricula adapted to their own programs,
- Full academic recognition, guaranteeing that they will not waste time and miss courses while studying abroad.

INFORMATION:
Erasmus+ Program Site: https://www.aueb.gr/en/erasmus

ERASMUS+ Program in the Department of Management Science and Technology
During the program's operation in our department (2002-present), 755 DMST students took part. These students stayed for a semester or a completely academic year with successful results in their studies and returned to the University with excellent impressions from their experience.

	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Outgoing Students	2	10	29	18	29	22	32	29	22	31
Incoming Students	0	5	19	16	21	24	28	43	25	17
	2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Outgoing Students	55	40	42	50	37	44	53	62	5	51
Incoming Students	22	26	33	49	47	48	47	61	56	62
	2022	**2023**								
Outgoing Students	48	44								
Incoming Students	59	70								

The faculty members of the Department provide the following courses in English to incoming **ERASMUS** students.
Winter Semester 2023
1. Modern Enterprise Information Systems,
2. Managerial Decision Making,
3. Innovation in Organizations: Knowledge, Creativity and the Processes of Innovation,
4. Information Resource Management.

Spring Semester 2024
1. Production and Operations Management,
2. Applied Software Engineering.
3. Management of Information Systems.

Contact
Academic Coordinators of Erasmus+ program in the department are:
Professor Klas Eric Soderquist, e-mail: soderq@aueb.gr (outcoming students)
Assistant Professor Dimitris Zissis, e-mail: dzisis@aueb.gr (outcoming students)
Associate Professor Emmanouil Zachariadis, ezach@aueb.gr (outcoming students)
Professor Irini Voudouris, e-mail: ivoudour@aueb.gr (incoming students)
Secretarial support:
Kelly Vourloumi, e-mail: kvourloumi@aueb.gr.
Information for the Erasmus+ program at the Department:
https://www.dept.aueb.gr/en/dmst/content/erasmus-program

4.1.3 Tutors

The institution of the Supervising Professor (tutor) is one of the innovations of the Department of Management Science and Technology. The Tutor is the contact point of the student, throughout his/her studies, with the Department and advises him/her on issues of academic progress, participation in the academic community, access to AUEB services, difficulties in attending and learning, questions on academic issues as well as for personal issues that create difficulties in his/her studies.

4.2 Information about the University

The Athens University of Economics and Business emphasizes not only on providing high quality education, but also on providing high quality services to students.

4.2.1 University Student Club

The University Student Club aims to improve the living conditions of the students of the Institution, the entertainment and the promotion of their social and intellectual education through procedures and initiatives of socialization participation.

The fulfillment of this purpose is pursued by providing the necessary material and technical infrastructure for housing, food, sports for students, by operating a restaurant, canteen, reading room, library, organizing lectures, concerts, theatre performances and excursions, the development of international student relations, the teaching of foreign languages and information technology and Modern Greek as a foreign language for foreign and expatriate students and the provision of all other means and ways.

Detailed information on: a) food and accommodation, b) foreign languages, c) sports and cultural activities and d) allowances and scholarships, is provided on the Student Club website (https://lesxi.aueb.gr/).

4.2.2 Electronic services

A significant number of procedures, related to both attendance and student care, are carried out electronically through applications of the University or the Ministry of Education, Religious Affairs and Sports. The applications can be accessed with the same passwords (username & password) and are described below:

E-mail:
All students are provided with an e-mail account (e-mail) in the format "username@aueb.gr". The e-mail is accessed with the "username/password" of their academic account. Detailed instructions for using the Webmail service are provided at: https://www.aueb.gr/el/content/webmail-manual

Student Register (e-Grammateia)
The e-Registry application is the information system through which the Departmental Secretariat via the web can serve students.

eCLASS (eLearning Platform)
The Open eClass platform is an integrated Electronic Course Management System and is the proposal of the Academic Internet (GUnet) for the support of Asynchronous Distance Learning Services.
Instructions for use are provided at: https://eclass.aueb.gr/info/manual.php

University Wireless Network (WiFi)
Using their personal passwords, students have access to a wireless network in all areas of the Athens University of Economics and Business. More information can be found at the following link: Instructions for WiFi.

Virtual Private Network (VPN)
If you wish to use services such as the book/journal resources of the library, you must connect your computer to the VPN service.

Instructions can be found at the following link: https://www.aueb.gr/content/vpn-service

EUDOXUS programme
Using their personal passwords, students have access to the "Eudoxus" system, which involves the automation of the selection and distribution of course texts for all HEIs. Through the Electronic Service for Integrated Management of Textbooks and Other Aids (Eudoxus), students can select the textbook they want for each course and be informed of the place and time of its receipt.

Contact - Information - Connection with the University's Community
In the official channels of the University, which you can find at: https://www.aueb.gr/el/content/social-media-aueb you can find out about the news and activities of the University and contact the Community.
The "AUEB Cast" includes "webcasts" and "podcasts", with content of interest to the university community and the public, such as entrepreneurship, innovation, technology, and social responsibility.
You can find the shows at https://www.aueb.gr/el/content/aueb-cast.

The University is pioneering the "3D Virtual Walkthrough" that offers a unique tour experience of the University's spaces, improving accessibility. See the "Virtual Walkthrough" at: https://www.aueb.gr/el/content/egkatastaseis. At https://www.aueb.gr/el/opanews you can find the newspaper "OPA News", which is regularly published with the newspaper "Vima tis Kyriakis" and includes special features and articles on current and interesting topics.

The "myAUEB" application
The undergraduate application, which is connected to the University's information systems and to external information systems, provides the student with information on a wide range of services and possibilities, such as: digital communication with the Department's secretariat for sending requests, connection to e-class and e-Grammateia, connection to AUEB SocialMedia, etc. More information can be found at the link: https://www.myauebapp.gr/

4.2.3 Medical Services, Insurance/Health Care

Undergraduate and postgraduate students, as well as doctoral candidates of the University, who do not have other medical and hospital care, are entitled to full medical and hospital care in the National Health System with coverage of the relevant costs by the National Health Service Organization. The University also operates a Mental Health Counsellor service, where a doctor specialised in psychodynamic treatment of mental health issues is employed (https://www.aueb.gr/el/content/ypiresia-symvoulou-psyhikis-ygeias). More information can be found at https://www.aueb.gr/el/content/medicalservices.

4.2.4 Services for Students with Special Needs

The institution provides for the facilitation of students with special needs through the design, implementation and application of environmental adaptations for access to university buildings. In particular, in the main building there are specially designed lifts, ramps and lifts. There are also special regulations for conducting examinations for students with special needs.

The Athens University of Economics and Business has established an Equal Access Committee for people with disabilities and people with special educational needs. The Committee is an advisory body and its mission is to make recommendations to the competent bodies for the formulation and implementation of the policy of equal access for persons with disabilities and persons with special educational needs.

In addition, the University has a special vehicle that will serve the daily needs of students with mobility difficulties, picking them up from their place of residence and transporting them to the AUEB facilities in order to attend lectures in the lecture halls in person, just like their fellow students. This pioneering action is expected to be offered from the new academic year, i.e. from September 2024.

At the same time, through the services of the library, students with print disabilities are provided with electronic access to the recommended Greek bibliography of the courses taught at the University.

In this context, the Association of Greek Academic Libraries has developed a multimodal electronic library called AMELib. More information is provided on the website: https://www.aueb.gr/el/lib/content/αμεα-άτομα-με-ιδιαίτερες-ανάγκες

4.2.5 Professor-Counsellor or Study Advisor

Each Department shall have a Professor-Advisor, appointed by the Departmental Assembly, with the responsibility of guiding and advising students on their studies. The Professors-Advisors (faculty members) receive students for questions and advice regarding the educational process on days and times announced outside the office of the Professor-Advisor.

4.2.6 Study Rooms - Reading Rooms - Libraries

A Library and Information Centre is operated in the main building for the convenience of all members of the university community. The Library participates in the Association of Greek Academic Libraries (Heal-LINK) and the Network of Cooperation of Economic Libraries.

The Library and Information Centre contributes decisively both to meeting the needs for scientific information of the university community and to supporting the teaching and research work by providing access:

- the printed collection of books and scientific journals,
- the texts taught in the courses,
- the collection of electronic journals and books,
- postgraduate theses and doctoral dissertations produced at the AUEB and deposited in digital form in the institutional repository PYXIDA,
- in sectoral studies,
- statistical series from national and international organisations,
- audiovisual material,
- information material (encyclopedias, dictionaries),
- databases on the subjects cultivated by the University,
- printed collections of other academic libraries.

The Library is open for lending to its members to all its printed collections, except for the collections of periodicals and statistical series, in accordance with its internal regulations. The Library has a reading room, computer workstations for visitors, photocopying and printing machines, and offers the possibility of interlibrary book lending loan and journal articles from other academic libraries that are members of the networks in which it participates. More information can be found on the Library's website (https://www.aueb.gr/el/library).

4.2.7 Student Support Unit

The following offices operate in the Unit:
a) Internship and Career Office, which is addressed to students and graduates of the undergraduate and postgraduate programmes of the Institution.
b) Support for Foreign Students and Mobility, which is addressed to foreign students enrolled in first, second and third cycle study programmes and to students interested in participating in mobility programmes.

4.2.8 Technology and Innovation Transfer Unit

The distinctive title of the unit is "Centre for Entrepreneurship, Innovation and Technology Transfer" (https://acein.aueb.gr/). The unit operates:
α) the Office of Technology Transfer and Innovation
b) The Incubator

The objective of the Technology Transfer and Innovation Unit is to strengthen the research capacity of the Institution, to link it with industry, to transfer the knowledge generated to society and to foster the idea of entrepreneurship within the academic community.

The general responsibilities of the unit, regarding the students of the University, are:
a) the training of students in technology transfer, entrepreneurship and development of research results for their commercial exploitation.
b) the provision of specialized advisory services to the students of the University on issues related to the unit's responsibilities.
(c) the development of students' skills in entrepreneurship through competitions, specialized seminars, summer school of entrepreneurship, etc.
d) supporting the process of creating entrepreneurial teams and the establishment/development of start-ups, exploiting emerging business opportunities and founded by students or graduates of the AUEB, as well as supporting the process of joining the National Registry of Start-ups, Elevate Greece (https://elevategreece.gov.gr).

4.2.9 Student Associations

Various student organizations and associations are active and developed in the university community: https://www.aueb.gr/en/content/student-clubs.

4.2.10 Alumni Network

In keeping with a long tradition of producing top executives in the economic, social and political life of the country, the AUEB is proud of the fact that thousands of its graduates hold leading positions in universities in the country and abroad, in international research institutes and organizations and in major public and private sector companies. Understanding the importance of developing and strengthening the link with its alumni, the AUEB has created its Alumni Network, a platform https://alumni.aueb.gr/ where all alumni of the University can register. The main objectives of the Network are to reconnect alumni with their colleagues and former classmates, and to keep them informed about all the activities, services and events that concern them.

Additional information on Alumni Organizations and Associations is provided on the website: https://www.aueb.gr/en/content/alumni.

4.2.11 Volunteer Program

As part of the University's strategy for Social Contribution, the "AUEB Volunteers" Volunteer Program was launched. The aim of the Programme is to create a culture towards volunteering on the one hand as an important learning experience and on the other hand as an obligation of every responsible citizen. The objective of "AUEB Volunteers" is approached through (https://www.aueb.gr/el/volunteers).

4.2.12 Quality Assurance Unit

The AUEB applies a quality assurance policy with the aim of continuously improving the quality of the curricula, research activity and administrative services of the institution, in order to improve its academic and administrative work and its overall operation.

The Quality Assurance Unit operates at the AUEB, coordinates, and supports the evaluation processes. In particular, quality assurance of educational activity is achieved with questionnaires for the evaluation of: a) the course/teaching of undergraduate and postgraduate programmes of study, b) the institution's educational laboratories, c) the survey of final-year students of undergraduate programmes of study, d) the survey of first-year students, which are completed by the students. (https://www.aueb.gr/en/modip).

4.2.13 Vocational Training and Lifelong Learning Center

The Vocational Training and Lifelong Learning Center is a unit of the UAA that ensures coordination and interdisciplinary cooperation in the development of continuing education, continuing education, training and lifelong learning programmes in general, which complement, modernize and/or upgrade knowledge, competences and skills acquired through formal education, vocational education and initial vocational training systems or work experience, facilitating integration or reintegration into the market (https://www.aueb.gr/en/content/kedivim-opa).

4.2.14 Submission of Complaints and Objections

In order to continuously improve the quality of the educational and administrative services offered by the University, a procedure for the management of students' complaints and objections is available to ensure their immediate and holistic processing with a view to efficiency and confidentiality.

The complaints and objections form can be found at the following link: https://www.aueb.gr/en/complaints-form.

4.2.15 Gender Equality

The promotion of Gender Equality at all levels of operation and in all aspects of the academic life of the UAA is an important dimension of the University's Social Responsibility. The actions and structures for Gender Equality available at the UAA aim to inform and raise awareness of its academic community of its paramount importance and to fully integrate Gender Equality in the University's operations. Through these structures and actions, the UBA seeks to fully embed a culture of equality and equity in the institution (https://isotita.aueb.gr/).