2025

Curriculum 2025-2026

DEPARTMENT OF PRODUCTION AND MANAGEMENT ENGINEERING

DEMOCRITUS UNIVERSITY OF THRACE

SCHOOL OF ENGINEERING, VAS. SOPHIAS 12, BUILDING 1, GR-671 32 XANTHI, GREECE

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Editors: A. Vavatsikos, Associate Professor and A. Xanthopoulos Assistant Professor

Message from the Head of the Department of Production and Management Engineering

Dear students,

Welcome to the Department of Production and Management Engineering of the Democritus University of Thrace. The successful course of the specialization of Production and Management Engineering in Greece's higher education is evidenced by the number of graduates, who have careers both in the Greek and international professional firmament in positions of important prestige and content in all branches of economic activity, prominently in industry, construction, academy – research, in public administration and local government as well as in general services (economics, tourism, environment, finance, marketing, all kinds of businesses) etc. Various surveys have captured this situation for this specialty, highlighting indicators such as the average search time to find a job (a few months), relatively high salaries, great flexibility, and key positions across the economy. Perhaps the most important indicator, however, is the high level of satisfaction among our graduates. This is mainly due, on the one hand, to the interdisciplinarity of the subjects of study (at undergraduate level it is one of the first -and few- departments in Greece where the mix of studies integrates and combines the basic subjects of engineering such as mechanical engineering, electrical engineering, electronics, robotics, with management, economics, informatics and production). Besides, interdisciplinarity is something for which the next generation of education (Education 4.0) is looking as a catalyst for technological and scientific developments, akin to an academic DNA of exceptional diversity, adapting dynamically and proactively to an ever-changing ecosystem of knowledge, skills, and demands. We aim to foster this interdisciplinary approach, and our goals are to achieve excellence in the cognitive fields we specialize in, offer flexible specialization and focused differentiation of our graduates in high-level educational, research, and administrative services. All human resources of the Department (Professors, Teaching and Technical Staff, Secretariat, and administrative services) are constantly supporting the students, trying to facilitate their daily lives. The graduates of the Department have guaranteed professional rights, and it is no coincidence that our Department attracts students from different schools and specialties, both at the qualifying level and in the Postgraduate Program entitled "Innovation, Technology and Business Management", a large percentage of whom are employees with established careers. In the Study Guide, you will find information about the operation of the Department, the staff, and the courses taught and their brief description.

Professor Georgios Gaidajis,
Head of the Department
Production and Management Engineering of the Democritus University of Thrace

Table of contents

MESSAGE FROM THE HEAD OF THE DEPARTMENT OF PRODUCTION AND MANAGEMENT ENGINEERING II
THE CITY OF XANTHI 1

THE COASTAL ZONE OF THE PREFECTURE OF XANTHI 1
THE CARNIVAL OF XANTHI 1
THE OLD TOWN CELEBRATIONS 2
YOUTH CELEBRATIONS 2
MANOS HADJIDAKIS FESTIVAL 2

THE DEMOCRITUS UNIVERSITY OF THRACE 3

GENERAL DATA 3
ADMINISTRATION OF HEIS 3
Administrative Board *3*
Rector *5*
Vice-Rectors *7*
Senate *8*
Executive Director *9*
ADMINISTRATION OF THE DEMOCRITUS UNIVERSITY OF THRACE 10
Rector *10*
Vice-Rectors *10*

THE SCHOOL OF ENGINEERING AT XANTHI 12

THE DEAN OF THE SCHOOL OF ENGINEERING 12
Responsibilities of the Dean *12*
THE DEANSHIP OF THE SCHOOL OF ENGINEERING 13
Responsibilities of the Deanery *13*
STRUCTURE OF THE FACILITIES OF THE SCHOOL OF ENGINEERING 14
MASTER EQUIVALENCE 15
Single and inseparable postgraduate degree *16*
ACCREDITATION OF THE UNDERGRADUATE PROGRAM OF STUDIES 16

THE DEPARTMENT OF PRODUCTION AND MANAGEMENT ENGINEERING 18

MISSION OF THE DEPARTMENT OF PRODUCTION AND MANAGEMENT ENGINEERING 18
OBJECTIVES OF THE PROGRAMME 20
VOCATIONAL REHABILITATION AND RIGHTS 20
STAFF 24
Professors 24
Teaching staff under contract 26
Laboratory Teaching Staff 26
Special Technical Laboratory Staff 27
Administrative staff 27

THE ADMINISTRATION OF THE DEPARTMENT 28

THE HEAD OF THE DEPARTMENT 28
Responsibilities of the Head and Deputy Head 28
THE ASSEMBLY OF THE DEPARTMENT 29
Head of the Assembly of the Department 29
Members of the Assembly of the Department 29
Responsibilities of the General Assembly of the Department 30
LABORATORIES 32
Laboratory of Industrial Production 32
Laboratory of Robotics and Automation 32
Laboratory of Product Design 32
Laboratory of Logistics 32
Laboratory of Ergonomics and Occupational Safety 32
Laboratory of Financial Engineering 33
Laboratory of Marketing 33
Laboratory of Management Information Systems 33
Laboratory of Fluid Mechanics and Hydrodynamic Machines 33
Laboratory of Thermodynamics and Thermal Machines 33
Laboratory of Materials Technology 34
Laboratory of Mechanical Design 34
Laboratory of Computational Mathematics 34

Laboratory of Environmental Management and Industrial Ecology ... 34
SECRETARIAT ... 34
Secretariat Contact Details ... 35
Student Affairs Service ... 35
Electronic Secretariat ... 35

UNDERGRADUATE PROGRAM OF STUDIES ... **36**
COURSE SYLLABUS OUTLINE ... **41**

1ST YEAR - 1ST SEMESTER OF STUDIES ... 41
A9Y: General Physics (Theory:2, Exercises:1, Labs:1, ECTS:5) ... 41
A1Y: Linear Algebra and Discrete Mathematics (Theory:3, Exercises:1, Labs:1, ECTS:5) ... 41
A2Y: Introduction to Computer Science (Theory:2, Exercises:0, Labs:2, ECTS:5) ... 42
A3Y: Mathematical Analysis I (Theory:3, Exercises:1, Labs:1, ECTS:5) ... 42
B11AT: Mechanical Design I (Theory:2, Exercises:0, Labs:2, ECTS:5) ... 43
A7Y: Management Systems for Engineers (Theory:3, Exercises:1, Labs:1, ECTS:5) ... 43
1ST YEAR - 2ND SEMESTER OF STUDIES ... 44
B1Y: Probability and Statistics (Theory:3, Exercises:1, Labs:0, ECTS:4) ... 44
B2Y: Mathematical Analysis II (Theory:3, Exercises:1, Labs:1, ECTS:6) ... 44
C4Y: Applied Thermodynamics (Theory:3, Exercises:2, Labs:0, ECTS:5) ... 46
B5Y: Structured Programming (Language C) (Theory:2, Exercises:0, Labs:2, ECTS:5) ... 47
B10Y: Operational Research (Theory:2, Exercises:1, Labs:1, ECTS:5) ... 47
B12Y: Research Methodology (Theory:2, Exercises:1, Labs:1, ECTS:5) ... 47
2ND YEAR - 3RD SEMESTER OF STUDIES ... 49
C3Y: Materials Technology I (Theory:3, Exercises:1, Labs:0, ECTS:5) ... 49
I02: Product Design (Theory:2, Exercises:0, Labs:2, ECTS:5) ... 49
ST9Y: Heat Transfer (Theory:3, Exercises:1, Labs:0, ECTS:6) ... 49
This course introduces the fundamental principles of heat transfer with applications in industrial processes and thermal system design and presents the analysis and optimization of energy usage in manufacturing and operational environments. ... 50
C5Y: Mechanics I (Statics) (Theory:2, Exercises:2, Labs:0 ECTS:6) ... 50
Z06: Marketing (Theory:3, Exercises:1, Labs:0 ECTS:5) ... 51
+ One optional compulsory course (ECTS:3) ... 52
2ND YEAR - 4TH SEMESTER OF STUDIES ... 52

D1Y: Differential Equations (Theory:3, Exercises:1, Labs:0, ECTS:5) 52
D2AY: Electrical Circuits (Theory:3, Exercises:1, Labs:1, ECTS:6) 52
D9Y: Mechanics II (Strength of Materials) (Theory:3, Exercises:2, Labs:0, ECTS:5) 53
D4Y: Information Systems (Theory:3, Exercises:1, Labs:0 ECTS:5) 53
D7Y: Production Systems (Theory:2, Exercises:1, Labs:2, ECTS:6) 54
+ One optional compulsory course (ECTS:3) 55
3RD YEAR - 5TH SEMESTER OF STUDIES 56
E8Y: Mechanics III (Dynamics) (Theory:2, Exercises:1, Labs:2, ECTS:6) 56
E3Y: Fluid mechanics (Theory:3, Exercises:1, Labs:0 ECTS:6) 56
E4Y: Production Technologies (Theory:3, Exercises:1, Labs:2, ECTS:5) 57
E1E: Electrical Machines (Theory:2, Exercises:1, Labs:1, ECTS:5) 57
ST10Y: Industrial and Technological Marketing (Theory:3, Exercises:1, Labs:0, ECTS:5) 58
+ One optional compulsory course (ECTS:3) 59
3RD YEAR - 6TH SEMESTER OF STUDIES 59
ST7Y: Industrial Process Systems (Theory:3, Exercises:1, Labs:0, ECTS:5) 59
ST2Y: Electronics (Theory:3, Exercises:1, Labs:1, ECTS:6) 59
H07: Industrial Electrical Installations (Theory:2, Exercises:1, Labs:1, ECTS:5) 60
D4E: Human Resources Management (Theory:2, Exercises:1, Labs:1, ECTS:5) 61
E1AY: Mechanical Design II (Theory:2, Exercises:1, Labs:2, ECTS:6) 62
+ One optional compulsory course (ECTS: 3) 62
4TH YEAR - 7TH SEMESTER OF STUDIES 63
Z01: Automatic Control Systems (Theory:2, Exercises:1, Labs:1, ECTS:6) 63
Z13: Mechatronics (Theory:2, Exercises:1, Labs:1, ECTS:5) 63
H04: Decision Support Systems (Theory:2, Exercises:1, Labs:1, ECTS:5) 64
I04: Project and Programme Management (Theory:3, Exercises:1, Labs:1, ECTS:5) 65
Z07: Management of Information Systems (Theory:3, Exercises:1, Labs:0, ECTS:6) 66
+ One optional compulsory course (ECTS: 3) 66
4TH YEAR - 8TH SEMESTER OF STUDIES 66
H01: Robotics (Theory:3, Exercises:1, Labs:1, ECTS:6) 66
Z11: Technological Economics (Theory:2, Exercises:2, Labs:0, ECTS:5) 68
H15: Motion Transmission Systems (Theory:2, Exercises:2, Labs:1, ECTS:6) 68
H14E: Computational Intelligence & Machine Learning (Theory:2, Exercises:1, Labs:1, ECTS:5) 69

+ One optional compulsory course (ECTS: 3) ... 70
5TH YEAR - 9TH SEMESTER OF STUDIES ... 71
H10: Fluid Dynamics Machines (T:2, A:1, E:1, ECTS:5) ... 71
H13: Supply Chain Management (Theory:2, Exercises:1, Labs:1, ECTS:5) ... 72
I07: Technological Innovation and Entrepreneurship (Theory:2, Exercises:1, Labs:1, ECTS:5) ... 72
Z14Y: Mental Ergonomics & Interactive Design (Theory:3, Exercises:1, Labs:0, ECTS:4) ... 73
H12: Inventory Theory (Theory:3, Exercises:1, Labs:0, ECTS:5) ... 74
+ Two optional compulsory courses (ECTS: 6) ... 75
5TH YEAR - 10TH SEMESTER OF STUDIES ... 75
Diploma Thesis: 30 hours/week (ECTS~30) ... 75
OPTIONAL COMPULSORY COURSES FOR WINTER SEMESTERS ... 76
Elective courses of the Department of Production and Management Engineering ... 76
EP8: Algorithmic Optimization Methods (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 76
Z02: Data Analysis (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 76
EP13: Big Data Analytics (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 77
C2Y: Object Oriented Programming C++ (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 78
E5Y: Databases (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 79
I10: Industrial Electronics and Automation (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 79
I08: Intelligent Industrial Production Systems (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 80
C4E: Graph Theory (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 81
I03: Integrated Industrial Informatics Systems (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 82
EP6: Organizational Behavior (Theory:3, Exercises:0, Labs:0, ECTS:3) ... 82
EP12: Elements of Law & Technical Legislation (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 83
ST4E: Stochastic Processes (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 83
I11: Strategic Planning (Theory:3, Exercises:0, Labs:0, ECTS:3) ... 84
H06: Financial Management (Theory:3, Exercises:0, Labs:0, ECTS:3) ... 85
ΕΠ0: Internship (ECTS:3) ... 86
ELECTIVE COMPULSORY COURSES FOR SPRING SEMESTERS (OFFERED BY THE PME DEPARTMENT) ... 87
ST3E: Numerical Analysis (Theory:2, Exercises:1, Labs:1, ECTS:3) ... 87
EP10: Geographic Information Systems (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 87
EP9: Geometric Transformations (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 88
EP7: Project risk management (Theory:2, Exercises:0, Labs:1, ECTS: 3) ... 89

Z15: Occupational Safety and Health Management (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 89
I05: Total Quality Management (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 90
ST8Y: Management Accounting (Theory:3, Exercises:0, Labs:0, ECTS:3) ... 91
E9E: Dynamic Programming (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 92
C5E: Introduction to Economic Analysis (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 92
Z05: Quality Control (Theory:3, Exercises:0, Labs:0, ECTS:3) ... 93
EP1: Market Research (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 94
I06: Thermal Machines (Theory:2, Exercises:1, Labs:0 ECTS:3) ... 94
The course covers the following topics: Basic concepts, Presentation, and applications of thermal machines. Review of fundamental thermodynamic concepts necessary for understanding the operating principles of thermal machines. Thermal machines and the Second Law of Thermodynamics. Thermal machines, heat pumps, and refrigeration systems. Exergy and available energy in thermodynamic systems. Performance of thermal machines based on the Second Law of Thermodynamics. Exergy transfer via heat, work, and mass. The principle of exergy degradation and destruction. Presentation of fundamental thermodynamic cycles for thermal machines (e.g., gas turbines, reciprocating engines), and determination of thermal efficiency. Performance enhancement of thermal machines (gas turbines) through regeneration and heat recovery technologies. Thermal machines with two-phase working fluids (e.g., steam – Rankine cycle), and techniques to improve thermal efficiency through regeneration and heat recovery. Combined cycles for power generation and cogeneration/trigeneration in energy production units. Introduction to compressibility effects in fluid flow within thermal machines (e.g., Ramjet, Scramjet engines). Presentation and operating principles of innovative thermal machines are currently being studied and developed in international research programs. ... 94
I01: Simulation (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 95
EP2: Strategic Marketing (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 96
C7Y: Computer Aided Design (CAD) (Theory:1, Exercises:0, Labs:2, ECTS:3) ... 97
EP5: Service Design (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 97
EP3: Computer Vision (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 98
EP11: Materials Technology II (Theory:2, Exercises:1, Labs:0, ECTS:3) ... 98
EP4: Reliability and Maintenance of Technological Systems (Theory:2, Exercises:0, Labs:1, ECTS:3) ... 99
EP0: Internship Programme (ECTS:3) ... 100

POSTGRADUATE STUDIES AT THE DEPARTMENT OF PRODUCTION AND MANAGEMENT ENGINEERING ... 101

POSTGRADUATE STUDIES PROGRAM ... 101
General data ... 101
Coordinating Committee of the Postgraduate Program ... 102
Curriculum ... 102

DOCTORAL STUDIES PROGRAM (PHD) 106
General Data *106*
Project Website *106*
CARTOGRAPHIC DATA OF THE PME DEPARTMENT **107**
PROKAT ENGINEERING SCHOOL COMPLEX 107
BUILDING I LAYOUT -GROUND FLOOR AND 1ST FLOOR 108
BUILDING I LAYOUT -2ND AND 3RD FLOOR 109
USEFUL WEBSITES **110**

The city of Xanthi

Built amphitheatrically at the foot of the Rhodope Mountains, Xanthi is located in Thrace (Northern Greece), the crossroads of the Black Sea and the Aegean, Europe and Asia. The River Kosynthos divides the city into two parts: the western part, where the old and modern sections of the city are located, and the eastern side, known as the "Samakov district", which boasts a rich natural environment. Both places still retain their traditional atmosphere, captivating visitors with their nobility and grandeur. The narrow, cobbled streets of the old town are lined with beautiful mansions, whose architecture is a wonderful blend of local, Ottoman, and Greek neoclassical styles. Along with Byzantine churches and picturesque squares, the city's old town could be said to be an open-air museum, the glory of which remains intact over time. The modern part of the city is situated in a beautiful square featuring the central clock and renovated tobacco warehouses, such as the famous "P" on Kapnergaton Street, which takes its name from the shape of the buildings built in 1890. Do not forget to visit the flea market, which boasts a characteristic local flavor and takes place every Saturday.
Get a deeper taste of the rich history of the area through your visit to the Museum of Folk Art, the Museum of Natural History, the Municipal Art Gallery, and the archaeological site of Avdira. Colorful cultural events organized throughout the year offer another important reason to visit Xanthi. The Old Town Festivals in September, during which all events take place in the narrow, cobbled streets of the old town of Xanthi, as well as the Youth Festival and the River Nestos (Music) Festival in summer, are especially popular among young people.

The Coastal Zone of the Prefecture of Xanthi

Throughout the southern part of the prefecture of Xanthi, there are beautiful beaches, open to the Thracian Sea, bounded west by the Nestos delta and east by the lagoons of the Vistonida lake complex. Beaches and places well-organized and equipped include those of Erasmus, Mangana, Myrodato, Avdira, and Mandra, where access from the city is fast and the road network is adequate. Beaches that stand out for their cleanliness, shallow waters, sandy beaches, and picturesque coves attract vacationers and amateur fishermen. Besides, these areas offer an unruly beauty during the winter months as well as many opportunities for bird watching.

The Carnival of Xanthi

The institution with the longest lifespan is the Xanthi Carnival – Thracian Folklore Festivals, which began in 1966. Born in an era of urbanization and industrialization – a critical period in economic and identity issues – it has charted a course spanning more than forty years, evolving through various phases and reaching its present day. The Xanthi Carnival features a diverse range of events,

including music, dance, and theater performances, exhibitions with visual or other content, lectures, book presentations, and film screenings. During these two weeks of events in the city of Xanthi, another form of social performance, the feast, which can be found in various forms and locations, holds a significant place. The institution closes with the carnival parade and the custom of the burning of "Tzaros".

The Old Town Celebrations

The second festive institution in Xanthi is the Old Town celebrations, which have been held continuously since 1991, coinciding with the advent of autumn. Most of these events take place in the traditional, preserved settlement of Xanthi, known as the "Old Town", where the alleys are lined with hangouts for cultural and carnival associations, offering food and drink. In the hangouts of the city's cultural clubs, feasts are set up, while events similar to those of the carnival take place at the same time.

Youth Celebrations

The third festive institution, the Youth Festivals, takes place in late spring. The Youth Celebrations began in the same year as the Old Town Festivals and, as their title suggests, are centered on the city's student youth. In these celebrations, students are allowed to be both the protagonists on stage and in the audience. Thus, the residents of the city become aware of the happenings in urban space through either a process of creation–production or a process of participation–consumption.

Manos Hadjidakis Festival

This is the Manos Hadjidakis Festival, inaugurated in 1995 in honor of the great Greek composer, who was born and raised in Xanthi. This festival hosts concerts by Greek and other Balkan musicians and offers the opportunity to choirs from all over Greece and abroad to perform at the Municipal Amphitheater of the city.

The Democritus University of Thrace

General Data

The Democritus University of Thrace (DUTH) was established in July 1973 by Legislative Decree No. 87 of July 27, 1973, and commenced operations in the academic year 1974-1975. It was named "Democritus" in honor of the ancient Greek philosopher Democritus, who came from the city of Abdera in Thrace.
The administration of Democritus University of Thrace is based in Komotini, which serves as the capital of the Administrative Region of Eastern Macedonia and Thrace.
The Democritus University of Thrace currently operates ten Faculties and thirty-one Departments in seven cities of the Region of Eastern Macedonia and Thrace (Komotini, Xanthi, Alexandroupolis, Didymoteicho, Orestiada, Kavala, and Drama). Today, 40,736 undergraduate students, 5,231 postgraduate students, and 1,734 PhD candidates are enrolled at the Democritus University of Thrace.
The Democritus University of Thrace plays a crucial role in shaping the national and cultural identity of the Thrace region and contributes significantly to the high standards of higher education in Greece. With its quality of teaching and level of research, it has secured a place among the best Greek universities.
As a Higher Education Institution, the Democritus University of Thrace is a Legal Entity of Public Law with full self-government. It is supervised and subsidized by the State through the Ministry of National Education and Religious Affairs.

Administration of HEIs

According to Law 4957/21-6-2022, article 7 and in particular Chapters B and C, Higher Education Institutions have the following bodies: a) the Administrative Board, b) the Senate, c) the Rector, d) the Vice-Rectors, e) the Executive Director.

Administrative Board

According to Article 14, the Administrative Board has the responsibilities deriving from 4957/2022 and any other powers provided for by the internal regulation of the Higher Education Institution (HEI), provided that these have not been assigned by law to other bodies of the HEI.
a) Approves, upon the recommendation of the Rector and the opinion of the Senate, the four-year strategic plan of the HEI, which includes at least the strategy for the development of the HEI at local, national, European and international level, according to its particular profile and the framework of its mission in the following areas: academic and research policy, lifelong learning and

education, strengthening the extroversion and internationalization of the Institution, strengthening the connection with society and the economy, developing innovation within the HEI and upgrading the quality of the HEI's academic environment. b) Approves, upon the recommendation of the Rector, the programmatic agreements of article 15 of Law 4653/2020 (A' 12) with the Ministry of Education and Religious Affairs, which are concluded on the proposal of the Rector. c) Approves, upon the recommendation of the Rector and the Executive Director, the initial concise and detailed annual budget of the HEI (regular budget, budget of public investments, and own resources), its reforms, as well as the report of the HEI which it submits for approval to the Ministry of Education and Religious Affairs. Specifically, the reforms of the regular budget concerning the transfer of resources from any expenditure code, provided that their amount does not exceed thirty percent (30%) of the regular budget, as well as the reforms concerning the public investment budget and the allocation of an extraordinary subsidy to the regular budget, are carried out by decision of the Administrative Board without requiring approval by the Minister of Education and Religious Affairs. d) Approves, upon the recommendation of the Research Committee, the initial summary and detailed budget of the Special Account for Research Funds (SARF) of the HEI, its report, the financial statements, and the results of its financial year. e) Approves, following the recommendation of the Administrative Board of the Company for the Exploitation and Management of the Assets of the HEI, its initial budget and its amendments, as well as its report, financial statements, and results of use. f) Approves, upon the recommendation of the Rector, the proposal for the issuance or amendment of the Organization of the HEI, which it submits to the Ministry of Education and Religious Affairs. g) Approves, upon the recommendation of the Executive Director, the execution of expenditure and takes any decision required for the conduct of any kind of tender procedure for the award of public contracts for the supply of goods and the provision of services or the execution of works or studies, provided that the expenses are charged to the regular budget or the PSC of the HEI and exceed the limit of the value of expenditure assigned to the Rector of the HEI; According to case g' of para. 1 of article 15, as well as the execution of projects and studies for the upgrading of the infrastructure and equipment of academic units and other academic and research structures of the HEI in the context of the implementation of the strategic plan of the HEI, in accordance with its available resources. h) Establishes all kinds of committees, such as technical specifications, conduct and evaluation, monitoring and receipt, and approves their minutes for tender procedures falling within its competence. i) Approves the content of all kinds of contracts with natural or legal persons that bind the HEI. j) Accepts, upon the recommendation of the Executive Director, any kind of donation relating to money, real estate, goods, services, equipment, or the execution of works/studies, for the benefit of the HEI, inheritance, or bequest, as well as sponsorship, provided that it does not contravene the mission of the HEI. k) Selects the Executive Director of the HEI, upon the recommendation of the Rector of the HEI, and dismisses him from his duties. l) Approves, upon the recommendation of the Research Committee, the amount of the percentage withholding (%) of the revenues of each category of projects/programmes retained in favour of the Special Account for Research Funds (SARF) of the Higher Education Institution (HEI), as well as the allocation of the annual revenues of SARF, in accordance with article 237 and the use of SARF's reserves; in accordance with Article 242. m) Supervises and controls the operation of the SARF of the HEI, appoints the

members of the Research Committee, upon the recommendation of the Rector and the proposal of the Deanship of each School, and appoints the statutory auditors who carry out the annual audit. n) Appoints the members of the Administrative Board and the Managing Director of the Company for the Exploitation and Management of the Assets of the HEI, dismisses them from their duties, supervises its operation, and appoints the statutory auditors who carry out the annual audit. o) Approves the establishment or participation in spin-offs or other companies, upon the recommendation of the Research Committee, and appoints the representatives of the HEI to their governing bodies. p) Approves the annual planning and report for the development of the HEI's property, as well as the annual report of the HEI's activities. q) Approves, upon the recommendation of the Rector, the plan for the annual and multiannual recruitment planning of administrative staff according to the needs of the HEI and submits it to the Ministry of Education and Religious Affairs. r) Establishes the Technical Council of the Foundation. (s) Approves the conclusion of programme contracts or agreements with other public sector bodies. k) Attracts new funding, donations, financial support, and collaborations with foreign institutions. (u) establish the committees referred to in Articles 218 to 222 and approve the drafts referred to in Articles 224 to 228; v) Appoints the Deans of the Faculties of the HEI, except for the unidepartmental Faculties, from among the three (3) candidates nominated by the Evaluation Committee established by the Deanship, in accordance with article 24, and dismisses them for important reasons. w) Appoints a Head of Department and a Head of Division if there are no candidates for the respective office in a Department or Sector. x) Exercises control over the legality of the procedures for the election and development of the members of the Teaching and Research Staff and may refer back the minutes of the election or development if deficiencies in the procedure are found. y) Dismisses the Vice-Rectors of the HEI with an increased majority of eight eleven (8/11) for important reasons, such as the commission of disciplinary offenses, failure to implement the applicable legislation, the Internal Regulation, the Organization and the decisions of the Administrative Board, as well as the unjustified failure to implement the approved strategic plan and program agreements of the Foundation of article 15 of Law 4653/2020. z) Approves the establishment of University Research Institutes, controls and supervises their operation and appoints the statutory auditors who carry out the annual audit. aa) Collaborates with the Internal Audit Unit of the HEI. b) It may request any information, document, or data related to the operation of the HEI and, in its judgment, necessary for the performance of its responsibilities. cc) Approves the activity report of the Rector and the Vice-Rectors of the HEI, the Research Committee, and the Administrative Board of the Company for the Exploitation and Management of the Assets of the HEI. (l) Establish committees to study or deal with matters falling within its competence. ae) Prepares an annual activity report, which is communicated to the Ministry of Education and Religious Affairs and the National Authority for Higher Education.

Rector

According to Article 15, the Rector exercises the following responsibilities: a) Heads the HEI, represents it judicially and extrajudicially, and has the general supervision of its operation. b) Heads the Administrative Board and the Senate of the HEI,

prepares the agenda, appoints rapporteurs of the items on the agenda, chairs their work, proposes the issues for which no other member has been appointed as rapporteur, and ensures the implementation of their decisions. c) Is responsible for compliance with the legislation, the Internal Regulation of Operation of the HEI, and the decisions of the governing bodies of the HEI. d) Is responsible for the smooth operation of the HEI's services and ensures the cooperation of the HEI's bodies, teachers, and students. e) Prepares, in cooperation with the competent Vice-Rector and the Executive Director, the budget of the HEI (regular budget, budget of public investments, and own resources), as well as their reforms, and submits them for approval to the Administrative Board. f) Prepares, in cooperation with the competent Vice-Rector and the Executive Director, the final financial report of the HEI and submits it for approval to the Administrative Board. g) Approves the implementation of expenditure and takes any decision that is required for the award of public contracts for the supply of goods, the provision of services and the execution of works or studies, net value, plus Value Added Tax (VAT), up to a maximum of the amount corresponding to the tender procedure of direct award, provided that the costs are borne by the regular budget or the EPA of the HEI. (h) Sets up committees of all kinds, such as technical specifications, conduct and evaluation, monitoring and receipt, and approves their minutes for tender procedures for which the Rector is responsible, in accordance with case g). i) Signs all kinds of contracts with natural or legal persons that bind the HEI. j) Prepares, in cooperation with the Vice-Rectors per area of responsibility and the Executive Director, a four-year strategic plan for the development of the HEI in academic issues, research, internationalization, lifelong learning, connection with society and the economy, strengthening innovation within the HEI and generally enhancing the quality of the HEI's academic environment, k) Prepares, in cooperation with the Vice-Rectors of the HEI per area of their responsibility and the Executive Director, the programmatic agreements of article 15 of Law 4653/2020 (A' 12) with the Ministry of Education and Religious Affairs and submits them for approval to the Administrative Board. l) Acts as the authorising officer of the expenditure of the HEI. m) Prepares, in cooperation with the Vice-Rectors per area of responsibility and the Executive Director, a draft of the Rules of Procedure and submits it to the Senate for approval. n) Prepares, in cooperation with the Vice-Rectors and the Executive Director, a plan of the Organization of the HEI and submits it for approval to the Board of Directors. o) Chairs the Council of the Centre for Training and Lifelong Learning (Κ.Ε.ΔΙ.ΒΙ.Μ.) of the HEI and proposes to the Senate the appointment of the Director of Training. p) Prepares, in cooperation with the Executive Director, the draft annual and multi-annual recruitment plan for administrative staff in accordance with the needs of the HEI and submits it for approval to the Administrative Board. q) Announces the new positions of members of Teaching Research Staff, Special Educational Staff, Laboratory Teaching Staff, and Special Technical Laboratory Staff and issues the acts of appointment of all categories staff of the HEI, acts of changes in staff of the HEI, unless these have been specifically entrusted to other bodies, as well as acts of unsuccessful election or negative judgment. r) Ensures the organization of the administrative services of the HEI and assigns the administrative staff to them. s) Appoints, upon the recommendation of the Executive Director, the Heads of the administrative structures, until the completion of the procedures for the evaluation and selection of Heads, in accordance with article 86 of the Code of Status of Public Political Administrative Employees and Employees of Public Legal Entities (Law 3528/2007, A' 26)

and delegates the right to sign documents to the heads of the services of the HEI. k) Prepares an annual activity report, which it submits to the Administrative Board and the Senate of the HEI. u) Establishes committees for the study or processing of issues falling within its competence. v) Prepares, in cooperation with the competent Vice-Rector and the Executive Director, the annual planning and report for the utilization of the HEI's property, as well as the annual report of the activities and the general operation of the HEI, and submits them for approval to the Administrative Board. w) Chairs the Research Committee of the Special Account for Research Funds (SARF). x) Chairs the Administrative Board of the Company for the Exploitation and Management of the Assets of the HEI. y) Recommends to the Senate the members of the Council of (Κ.Ε.ΔΙ.ΒΙ.Μ.), following a proposal by the Deanship of each Faculty. z) May request the provision of data and documents from any institution and bring them to the attention of the Administrative Board. aa) Is responsible for security issues and for the protection of all kinds of staff and students of the HEI, as well as the real and movable property of the Institution. b) Ensures that measures are taken to ensure equal access of teaching staff, research, administrative, and other staff with disabilities to the premises of the HEI, as well as the access of students with disabilities or special educational needs to teaching and research and all activities developed within the academic community. cc) Takes all kinds of measures to deal with urgent issues when the competent governing bodies of the HEI are unable to function and make decisions. 2. By decision of the Rector, following the agreement of the Administrative Board, the order of replacement of the Rector is determined by the Vice-Rectors, when he/she is absent or prevented from exercising his/her duties, the area of responsibility of each Vice-Rector is determined, and the responsibilities of the para. 1, with the exception of those of para. (b), in accordance with the area of responsibility assigned on a case-by-case basis.

Vice-Rectors

According to Article 12, Vice-Rectors have a term of office parallel to that of the Rector. The position of Vice-Rector is incompatible with the status of internal member of the Administrative Board of the HEI, the Dean, the Head of Department, and the Head of Sector, as well as with any professional occupation outside the Higher Education Institution (HEI). The existence of incompatibilities is checked throughout the term of office of the Vice-Rector. The Vice-Rectors may also hold the position of Director of a Postgraduate Program, a Foreign Language Program of Studies, a University Laboratory, a University Clinic, a University Museum, and a Research Institute. 2. By decision of the Administrative Board, the Vice-Rectors proposed by the candidate member elected as Rector of the HEI are appointed. If a Vice-Rector resigns or is dismissed for any reason, by decision of the Administrative Board, following a proposal of the Rector, taken by an increased majority of eight elevenths (8/11), a new Vice-Rector is appointed until the end of the Rector's term. 3. By an act of the Rector, with the consent of the Administrative Board, the areas of responsibility of the Vice-Rectors and the responsibilities referred to in Article 15 are determined and are transferred to each Vice-Rector according to the area of responsibility assigned to him/her. 4. The Vice-Rectors are obliged to provide the Board with any necessary information or data regarding the exercise of the responsibilities assigned to them and to attend the meetings of the Board without voting rights. 5. By

decision of the Administrative Board, which is taken by an increased majority of eight elevenths (8/11), a Vice-Rector may be dismissed from office for important reasons, such as the existence of an incompatibility in his/her person, the commission of a disciplinary offense, the non-application of legislation or the internal rules or the decisions of the Board or the strategic plan of the HEI.

Senate

The Senate of the Institution, according to Article 16, consists of: a) the Rector, b) the Deans of the Faculties, c) the Heads of the Departments, d) one (1) representative from each category of members of Special Educational Staff, Laboratory Teaching Staff, and Special Technical Laboratory Staff of the Higher Education Institution (HEI), provided that respective categories of staff serve in it, elected in accordance with article 41 and e) student representatives in ten percent (10%) of the total members of the Senate of per. (a) to (c). If, based on the above percentage, a decimal number is obtained, which is greater than 0.5, it is rounded to the next largest whole unit, with the obligation to represent each cycle of study, at least one (1) student. Student representatives are elected by the Student Council in accordance with Article 43.
The Senate has the following responsibilities and any other responsibilities provided for by the internal rules of operation of the HEI, provided that they have not been assigned by law to other bodies of the HEI: a) Approves the establishment or modification of first, second and third cycle study programmes, including the foreign language programmes of study of the Institution, as well as their content. b) Approves the internal regulations for the operation of the programmes of study. c) Approves the institutional catalogue of courses. d) Submits to the Minister of Education and Religious Affairs an opinion on the establishment, abolition, merger, absorption, division, renaming, or change of seat of Faculties and Departments of the Institution. e) Approves the conclusion of collaborations with domestic or foreign institutions or research centers, institutes, and technological bodies of article 13A of Law 4310/2014 (' 258) for the organization of first, second, and third cycle interinstitutional study programs, as well as the protocols for academic or research cooperation with domestic or foreign bodies. f) Approves the internal rules of operation of the HEI, upon the recommendation of the Rector. g) Approves the beginning and end of academic semesters. h) Elaborates and submits proposals to the Administrative Board for the preparation of the four-year strategic plan of the HEI on issues of academic and research policy and development, internationalization, lifelong learning, connection with society and the economy, strengthening innovation within the HEI, and generally enhancing the quality of the academic environment of the University. i) Formulates the educational and research policy of the HEI, ensuring the assurance and upgrading of its quality, and establishes the Quality Assurance Committee of the HEI. j) Approves the establishment of university laboratories, university clinics, university museums, and research institutes, upon the recommendation of the competent body of the units in which they are established, and appoints their head until the first electoral process takes place; as well as if there are no nominations or in their absence for any reason. k) Approves the establishment of Departments in existing academic units, Departments or Faculties, and their changes. l) Approves the establishment of the Centre

for Training and Lifelong Learning (K.E.ΔI.BI.M.) of the HEI and its Internal Regulation of Operation. m) Establishes the Council of (K.E.ΔI.BI.M.) and appoints the Director of Training of the Centre, upon the recommendation of the Rector. n) Approves the establishment of the University Research and Innovation Centre and its Internal Regulation of Operation. o) Approves, upon the recommendation of the Board of Directors of University Research and Innovation Centre, the establishment, merger, division, abolition, or renaming of Research Institutes. p) Selects, upon the recommendation of the Board of Directors of University Research and Innovation Centre, the Scientific Directors of the Research Institutes, as well as the members of the Scientific Committees, if any. q) Approves the annual recruitment plan for members of Teaching and Research Staff, Special Educational Staff, Laboratory Teaching Staff, Special Technical Laboratory Staff, and temporary teaching staff, upon the recommendation of the Deans of the Schools of the HEI, following a proposal by the Assemblies of the Departments, which it submits to the Ministry of Education and Religious Affairs. r) Allocates the positions of members of the Teaching and Research Staff, Laboratory Teaching Staff, Special Technical Laboratory Staff, and temporary teaching staff approved by the Ministry of Education and Religious Affairs to the Departments of the HEI, according to their needs and the approved annual recruitment plan. Approves applications for the transfer of faculty members, teaching staff, Laboratory Teaching Staff, Special Technical Laboratory Staff, from one Department to another Department of the same HEI or another HEI, in accordance with Article 153. k) Awards titles of Emeritus and Honorary Professors and Honorary Doctorates, upon the recommendation of the Deanship. (u) Selects the members of the Administrative Board, the Director, and the Deputy Director of the University Research Institutes, following a public call, in accordance with Article 269. v) Checks the approved Registers of Cognitive Subjects and the Registers of Internal and External Electors, and may refer them back where it is found that they have not been established in a transparent and meritocratic manner.

Executive Director

According to Article 17 of Law 4957/2022, the position of Executive Director is established in each Higher Education Institution (HEI) for a term of office, reporting directly to the Board of Administration of the HEI. The Executive Director is selected following a public invitation, which is expedited by the Rector of the HEI. The term of office of the Director is parallel to the term of office of the Administrative Board. Article 18 defines the responsibilities of the Executive Director as follows: The Executive Director of the Higher Education Institution (HEI) heads the organizational units of the HEI and their staff, except for the Internal Audit Unit, coordinates and supervises their work, ensures the smooth and effective administrative and financial operation of the HEI, the implementation of its strategic plan and annual objectives and cooperates with the heads and other staff of the organizational units of the HEI in order to fulfill its mission. In particular, the Executive Director of the HEI exercises the following responsibilities: a) Assists the Board of Administration and the Rector in the exercise of their responsibilities and makes suggestions on issues assigned to him regarding the organization, operation and coordination of the actions of the HEI, b) monitors the implementation of the strategic plan referred to in article 224 hereof, the programmatic planning agreements of article 15 of Law 4653/2020 (A' 12), the annual objectives of

the HEI and the decisions of the governing bodies of the HEI, c) coordinates and supervises the implementation of the HEI's digital transformation plan, d) recommends the implementation of measures to the Rector of the HEI to achieve the objectives of the HEI, the Special Account for Research Funds (SARF) and the HEI's Company for the Exploitation and Management of Assets, e) participates in the collective bodies of the HEI chaired by the Rector or the competent Vice-Rector on a case-by-case basis, as well as in the Administrative Board of the Company for the Exploitation and Management of the HEI's Assets, upon order of the Rector, without voting rights, f) plans and coordinates the development actions of the HEI in accordance with the decisions of its bodies, g) collaborates with the Internal Audit Unit for the implementation of the internal control system and its improvement effectiveness of the services of the HEI, h) monitors the work of the committees referred to in Articles 218 to 222 and the preparation of the drafts referred to in Articles 224 to 228, i) cooperates with all organizational and academic units of the HEI in order to monitor the proper implementation of the decisions of the governing bodies of the HEI and to recommend to the Rector of the HEI measures to improve their effectiveness and efficiency, j) prepares an annual activity report, which it submits to the Rector of the HEI and k) exercises any other responsibility determined by the internal rules of operation of the HEI or assigned to him by the Rector of the HEI. 2. The Executive Director may exercise responsibilities for the financial management of the HEI's budget (ordinary budget, public investment budget, and own resources), following the agreement of the Administrative Board and the transfer of the relevant responsibility by the Rector of the HEI, provided that it has not been transferred to a Vice-Rector of the HEI.

Administration of the Democritus University of Thrace

Today, the Democritus University of Thrace is managed by the Rector, the Vice-Rectors, the Senate, and the Administrative Board.

Rector

The Rector of the Democritus University of Thrace is Professor Maris Fotios of the Department of Civil Engineering.

Vice-Rectors

The Vice-Rector for Academic Affairs, Student Affairs & Lifelong Education is Ms. Grigoriou Maria, Professor at the Department of Molecular Biology and Genetics.
The Vice-Rector of Finance, Planning, and Development is Mr. Halioris Konstantinos, Professor at the Department of Civil Engineering.
The Vice-Rector for Research and Innovation is Mr. George Broufas, Professor at the Department of Agricultural Development.
The Vice-Rector for Administrative Affairs is Mr. Gourgoulis Vasilios, Professor at the Department of Physical Education and Sport Sciences.

The School of Engineering at Xanthi

As with all non-departmental schools, the School of Engineering at Xanthi is managed by its Dean and Deanship.

The Dean of the School of Engineering

The Dean of the School of Engineering is currently the Professor of the Department of Production and Management Engineering, Mr. Antonios Gasteratos.

Responsibilities of the Dean

The Dean has the following responsibilities: a) heads the School and supervises its smooth operation, b) participates in the Senate representing the School and proposes to the competent bodies of the Higher Education Institution (HEI) issues related to the needs, organization and operation of the School, c) convenes the Deanship and presides over its work, prepares the agenda and appoints rapporteurs of the issues members of the Deanship for issues not proposed by him, d) ensures the implementation of the decisions of the Deanship and other bodies of the HEI, e) monitors and coordinates the implementation of the development plan of the School, f) monitors compliance with the legislation, the internal rules of operation of the HEI and the decisions of the governing bodies of the HEI, g) supervises the organization and operation of first, second and third cycle study programs organized exclusively by the Departments of the School or in collaboration with other Departments of other Faculties of the same or another HEI, h) collects the suggestions of the Departments and their individual academic units for their needs in human resources, infrastructure, equipment and resources and submits them to the Rector of the HEI, i) supervises the procedures for the election and development of the members of the Teaching Research Staff, Laboratory Teaching Staff, Special Educational Staff and Special Technical Laboratory Staff of the Departments of the School, j) allocates the premises and infrastructure of the HEI that have been provisioned for the needs of the School to the Departments, in accordance with their educational, research and other activities, k) supervises the proper use of all kinds of equipment of the academic units of the School, in accordance with the regulations on the use of equipment of the HEI and recommends to the Administrative Board of the HEI issues related to its maintenance or upgrade, l) establishes committees for the study or processing of specific issues falling within its competence, m) grants the leaves of absence for faculty members in accordance with articles 157, for which the Dean is responsible, n) prepares an annual report on his work, which he submits for approval to the Deanship and communicates to the Board of Administration of the HEI and o) exercises any other responsibility defined in the internal rules of operation of the HEI.

The Deanship of the School of Engineering

The Deanship of the School of Engineering at Democritus University of Thrace comprises the Dean, the Heads of the Departments, and a joint representative of the students of the School, who does not have voting rights.
Dean: Gasteratos Antonios, Professor, Department of Production and Management Engineering.
Deanship Members:

- Akratos S. Christos, Professor, Department of Civil Engineering.
- Papanikolaou Nikolaos, Professor, Department of Electrical & Computer Engineering.
- Christoforidis Konstantinos, Associate Professor, Department of Environmental Engineering.
- Polychronopoulos Dimitrios, Professor, Department of Architecture.
- Gaidajis George, Professor, Department of Production and Management Engineering.

Deanship Secretary: Ms. Theoni Spanidou.

Responsibilities of the Deanery

The Deanship has the following responsibilities: a) exercises the general supervision of the operation of the School and its Departments, b) defines the general educational and research policy of the School, as well as its development course and approves annually the development plan referred to in Article 27, in accordance with the strategic plan of the Higher Education Institution (HEI), as well as the National Strategy for Higher Education and the National Research Strategy, Technological Development and Innovation, c) takes measures to enhance the extroversion of the School's actions, d) approves, upon the recommendation of the Assemblies of the Departments, the annual recruitment schedule for members of the Teaching Research Staff, Special Teaching Staff, Laboratory Teaching Staff, and Special Technical laboratory Staff of the Departments of the School, e) ranks in descending order of priority the subjects of the faculty members, according to the needs of the Departments, if they have not been classified by the Assembly of the Department, f) rejects with reasoning requests for the recruitment of faculty members, Special Teaching Staff, Laboratory Teaching Staff, and Special Technical laboratory Staff which have been included in the annual recruitment plan, if there are members of the same rank in other Departments of the same or another Faculty, which can cover the educational, research, laboratory and other needs of a Department in order to achieve economies of scale within the same School and the HEI, g) recommends to the Senate the needs of the Departments for the selection of teaching assistants, provided that their selection is charged to the regular budget, following a proposal by the Assemblies of the Departments, h) suggests to the Rector the needs in administrative staff regarding the staffing of the services of the School, its Departments and its individual academic units, i) recommends to the Administrative Board of the HEI the needs for the smooth conduct of the educational, research and other scientific work of the School and its Departments, in order to be covered by the subsidy of the regular budget of the HEI, and if

this is not sufficient, by the annual allocation of own resources of the Special Account for Research Funds (SARF), j) approves the register of subjects of each Department of the School and may refer it back to the Assembly of the Department, if it finds that one or more disciplines are extremely narrow and limited in scientific field, aiming at individual cases, k) approves the Register of internal and external electors, in accordance with the approved register of subjects, l) proposes to the Administrative Board the HEI the representative of the School in the Research Committee, m) recommends to the Senate the representative of the School at the Center for Training and Lifelong Learning, n) seeks all kinds of funding, donations, financial aid and sponsorships to support teachers, research and general activities of the School and its Departments, as well as for the upgrading of their infrastructure, o) recommends to the Rector of the HEI the execution of projects and studies for the upgrading of the infrastructure and equipment of the School and its Departments, in accordance with the strategic plan of the HEI and the national strategy for higher education, p) coordinates the conduct of joint courses of the Departments of the School with other Departments of the same or another School of the HEI, q) recommends the inclusion of courses and educational activities of the curricula of the Departments of the School in the institutional list, r) determines the additional special conditions for the possibility of attending courses and educational activities of the curricula of the Departments of the School, by students of other programs of study of the same or another School, if their attendance requires specialized knowledge, such as laboratories and clinical exercises, s) approves the development plan of the School and formulates an opinion on the strategic plan, insofar as it concerns the Faculty, k) collaborates with the Departments in order to develop synergies between them for the development of teaching and research and the enhancement of the interdisciplinarity of the programs of study, u) recommends to the Senate the establishment, merger, division or abolition of interdisciplinary university laboratories or a university clinic or university museum of the School and v) exercises any other competence defined in the internal rules of operation of the HEI.

Structure of the Facilities of the School of Engineering

The School of Engineering consists of the following departments:

- Civil Engineering
- Electrical & Computer Engineering
- Environmental Engineering
- Architectural Engineering
- Production & Management Engineering

Due to the works that have been carried out in recent years, for the creation of the Kimmeria Campus, which has not been completed, some parts are housed within the City, and some outside in the new University Campus at a distance of 2.33km from each other, and 2.8km from the center of Xanthi.

On the campus located within the city are:

- The Deanery
- The Department of Production and Management Engineering (Classrooms, Laboratories, Secretariat, Administration)
- The Department of Architecture
- The laboratories of the Department of Electrical & Computer Engineering
- The Secretariat of the Department of Environmental Engineering and Classrooms.
- The library
- The reading room

On the Kimmeria campus are located:

- The Department of Environmental Engineering (except the Secretariat)
- The Department of Civil Engineering (Classrooms, Laboratories, Secretariat, Administration)
- The Reinforced Concrete Laboratory of the Department of Civil Engineering
- The Department of Electrical & Computer Engineering (Classrooms, Secretariat, Administration)

Finally, in the Kimmeria student dormitories are:

- The student residences
- The student restaurant
- The amphitheater "Karatheodory"
- The laboratories of the Environmental Engineering Department

MASTER equivalence

The Deanship is responsible for granting a certificate of equivalence with a Master's degree to all diplomas of the Departments of the Faculty of Engineering. The maximum number of certificates awarded is: one (1) in Greek and one (1) in English.
If you request copies for use abroad (English Language), you must justify your request and specify the exact destination of your submission.
To obtain a certificate of equivalence, the relevant application must be completed (see http://www.eng.duth.gr/master) and sent with an attached photocopy of your diploma to the Deanship of the Faculty of Engineering. The application can be sent by post or e-mail.
The certificate of equivalence may be received:

- In person
- By an authorized person (authorized by KEP or Police Station)

- Via a courier company that has a representative in Xanthi, and which is called by the interested party himself when he is notified by email that the certificate of equivalence is ready. The required instruction to the courier is that the collection will be made by the Dean of the Engineering Faculty of the Democritus University of Thrace, Vas. Sophias 12, 67100, Xanthi, tel. 25410 79040 & 79036

The Diploma of the graduates is considered to be a single and inseparable postgraduate degree (integrated master's) according to article 49 of (Law 4485 / 4-8-2017). The relevant article reads as follows:

Single and inseparable postgraduate degree

The successful completion of the first cycle of studies, which is organized in Departments of Universities and lasts at least ten (10) academic semesters (mandatory semesters for obtaining a degree or diploma according to the program of study), leads to the award of a single and inseparable postgraduate degree (integrated master) in the specialty of the Department, if in the program of study:
a) include courses to ensure: aa) the foundation in basic sciences and arts, bb) the development of core courses of the specialty throughout the relevant cognitive subject, cc) the deepening and consolidation at a high level of knowledge in the range of the cognitive subject of the specialty.
b) The preparation of a dissertation or diploma thesis lasting at least one (1) academic semester is foreseen.
In order to be subject to this provision, the Senate of the relevant HEI, upon the recommendation of the Assembly of the Department, addresses a request to the Minister of Education, Research and Religious Affairs, who, after consulting "E.S.E.K.A.A.D." and "A.D.I.P.", and provided that the criteria of paragraph 1 are met, issues a relevant declaratory decision, which is published in the Government Gazette. The opinions referred to in the previous paragraph shall be given within sixty (60) days from the receipt of the question by the Minister of Education, Research and Religious Affairs. Following the adoption of the above decision, the integrated master's degree shall be deemed to have been obtained from the date of award of the degree or diploma, and shall also apply to graduates before the entry into force of this law. A single and inseparable postgraduate degree does not entail any salary changes.

Accreditation of the Undergraduate Program of Studies

After an evaluation process by a relevant committee of foreign professors, the Undergraduate Program of Studies of the Department was accredited by the Evaluation & Accreditation Council of the National Authority for Higher Education (HAHE) with a four-year duration (21/07/2021 to 20/07/2025).
The Council accepted the Report of the External Evaluation & Accreditation Committee, according to which the Undergraduate Program of Studies of the Department fully complies with the principles of the Quality Standard of HAHE and the Quality Assurance Principles of the European Higher Education Area (ESG 2015) for level 7 of the National and

European Qualifications Framework. You can access the Accreditation Report of the Undergraduate Program of the Department of Production and Management Engineering *here*.

The Department of Production and Management Engineering

Mission of the Department of Production and Management Engineering

The Democritus University of Thrace, after a detailed study of the needs of the Greek production system and the labor market and taking into account the trends at the European and global level, regarding the design, implementation, and management of a modern and competitive production system, considered it appropriate to establish the Department of Production and Management Engineering (PME). The Department of Production and Management Engineering is similar to the Department of Production Engineering, which has been operating at the Technical University of Crete since September 1984.

The Democritus University of Thrace proposed the establishment of this new Department at the Engineering School of Xanthi in order to contribute to the economic development of Thrace and the whole country and to play an important and leading role in the wider region of southeast Europe and the Black Sea countries.

The creation in our country of a second Department of the same orientation, after the corresponding Department of the Technical University of Crete, was deemed appropriate and necessary, because the rate of absorption of graduates of the Technical University of Crete of this specialty is currently satisfactory, with trends of continuous increase. The mission of the Department of Production and Management Engineering is to cultivate and promote the science of Production and Management Engineering through academic and applied research, and to provide students with the necessary skills that ensure their excellent training for their scientific and professional careers and development. In particular, the Department of PME serves its mission by teaching, researching, and implementing systematic ways to improve productivity (increasing the quality and quantity of production while reducing available resources) and training engineering scientists capable of studying, researching, and dealing with the design of the structure and operation of modern technological and administrative systems.

The graduate engineer of the Department of PME can staff departments of organization, management, planning methods, and business planning. They can also develop critical skills necessary to organize human, material, and financial resources. Through his/her studies, he/she will acquire the necessary knowledge to manage and communicate with his/her associates. The tendency of engineers in traditional specialties to deepen and specialize in increasingly narrow disciplines, due to the rapid increase in knowledge, requires engineers who combine knowledge, enabling them to coordinate the entire production process, design the entire system, manage, and make informed decisions. Graduates of Production and Management Engineering can be employed as business consultants for investment issues, introducing new technologies, quality assurance (ISO), ergonomic design, and safety of work, as well as management and protection of the environment, in research and development departments of programming and design of enterprises of the secondary and tertiary sectors.

The graduates of the PME Department address the needs created by modern society and production, possessing the skills to act as executives or freelancers independently or in collaboration with other scientists. They prepare and proceed to scientific decision-making by assessing the current situation (statistical view) and predicting future developments (dynamic view). The occupation of graduates mainly concerns the following activities:

- Planning and control of the production process (optimization of production rates, division of work, stock control, allocation of repair resources, planning maintenance and replacement of equipment, allocation of raw materials, and other related activities).
- Research, design, and automation of the manufacturing of all kinds of products, with the help of computers.
- Location of the production site (production unit means a factory or service unit whose location takes technical, economic, and environmental factors into account).
- In-house spatial planning and design of individual production systems (optimization of the location of machinery and power stations in general, without ignoring the parameter "human resources").
- Scientific preparation of decision-making and/or exercise of scientific management in any administrative-technical system, in public and private enterprises, and in organizations – industrial units.
- Time and technical – financial planning of projects.
- Studies of all kinds related to business organization, aiming at the effective exercise of management.
- Market analysis and product promotion studies with scientific methods.
- Development and implementation of quality assurance systems in the production of products and the provision of services.
- Environmental impact studies of production.
- Studies concerning safety and hygiene in the workplace.

Qualified Production and Management Engineers can register with the Technical Chamber of Greece, the Register of Contractors' Enterprises, the Register of Manufacturers' Experience, and the Study Advisory Committee, for the respective projects.

Today, the Department of Production and Management Engineering consists of three Sectors (Government Gazette 1074/30.8.2000 vol. B').

They are:

- Sector A: Production Systems
- Sector B: Management Systems and
- Sector C: Materials, Processes, and Mechanical Engineering.

In addition, it has 14 laboratories (Government Gazette 838/14.5.2015 vol. B'):

- Laboratory of Industrial Production
- Laboratory of Robotics and Automation

- Laboratory of Product Design
- Laboratory of Logistics
- Laboratory of Ergonomics and Occupational Safety
- Laboratory of Financial Engineering
- Laboratory of Marketing
- Laboratory of Management Information Systems
- Laboratory of Fluid Mechanics and Hydrostatic Machines
- Laboratory of Thermodynamics and Thermal Machines
- Laboratory of Materials
- Laboratory of Mechanical Design
- Laboratory of Computational Mathematics
- Laboratory of Environmental Management and Industrial Ecology

Objectives of the Programme

The Department aims to train engineers, scientists, and specialists in the design and management of modern technological and administrative systems. Training in the Department of Production and Management Engineering (PME) cultivates in students competencies and skills necessary for the dynamic design of production systems for products and services. The curriculum of the Department combines knowledge of mathematics, natural sciences, and humanities, as well as production systems, operations research, information systems, applied economics, and administrative sciences.

Vocational rehabilitation and rights

The professional rights of graduates of the Departments of Engineering Schools are determined by Presidential Decree 99 (*Government Gazette 187 A' 5/11/2018*). In particular, graduates of the Department of Production and Management Engineering from Article 15 of the above PD.
More specifically, Article 15 states:
Article 15. Professional rights of Production and Management Engineer
1. Production and Management Engineer means an engineer who deals with technical problems relating to the production of products and services, installations, equipment, tools, mechanisms, machines, including technical issues relating to heating, cooling, ventilation, air conditioning and plumbing, as well as technical problems relating to the generation, transmission, distribution and

use of energy in thermal; electrical or mechanical form; It deals with aspects of the above related to research, design, study, construction, safe operation, administration and economy. The subject of Production and Management Engineering includes:
a. Planning, optimization, and management of industrial production and logistics:
Analysis and optimization of physical and administrative processes of production, storage, transport, and quality control of goods while ensuring the sustainability of industrial systems, safety and health conditions of workers, environmental protection, productivity, and economic efficiency.
b. Construction of all kinds of mechanical installations, machines and mechanisms: technical and economic design of mechanical structures and materials so that they can safely receive all kinds of loads on them (static, dynamic, seismic, thermal, percussive), property analysis and optimization of material selection in each mechanical construction for the safety and economy of these structures, the application of automatic control systems and robotics in mechanical construction and plant and the design of industrial process systems.
c. Energy engineering and analysis of machines, units and installations for energy conversion and transmission, heating, cooling, air conditioning: solving technical problems related to the production, transport and use of energy in its thermal, mechanical or nuclear form, thermodynamics, fluid dynamics, environmentally friendly and efficient design and detailed calculation of all kinds of loads (static, dynamic, seismic, thermal, impact) on units and installations for safe construction and economical and environmentally friendly operation of these
while ensuring hygiene, ergonomic design/operation and comfort conditions.
2. The Production and Management Engineer has the following professional rights:
a. Elaboration of studies for Passive Fire Protection of Building Projects.
b. Floor plans (two-dimensional) and sections of existing buildings for electrical and mechanical permits outside building permits of any kind, except monuments, listed buildings, traditional settlements and ensembles.
c. Elaboration of studies of the structure and spatial organization of public utility networks.
d. Elaboration and supervision of studies for the location of buildings, facilities, activities, businesses, special uses and organized receptors in relation to public utility networks.
e. Elaboration of spatial development studies (local and regional) and operational programs.
f. Elaboration of studies of metal installations where foundation and antiseismic calculation are not required.
g. Management and assessment (values of facilities and equipment, vulnerability, risk).
h. Elaboration of studies in facilities in industries and small businesses.
i. Elaboration of studies in building service network installations, namely:
j. (a) Electricity networks and associated installations (b) hydraulic, (c) refrigeration and air-conditioning installations; (d) installations for the combustion of liquid and gaseous fuels and ventilation;

k. (a) all kinds of boilers, heat pumps, and other systems, passive heating systems. (b). Elaboration of studies in other electrical installations. (c). Elaboration of studies on non-stationary machinery and equipment. (d). Elaboration of studies in facilities for the storage of dangerous products, as well as facilities for freezing or preserving perishable products. (e). Elaboration of studies of heating, cooling, and air conditioning installations. (f). Elaboration of studies of natural gas installations, passive heating systems, water supply, and sewerage installations of building projects.
Elaboration of studies of lifting and transport installations. (a). Elaboration of studies of hydraulic and pneumatic systems. (b). Design of electrical and mechanical equipment and mapping of existing installations. (c). Elaboration of studies of electricity storage systems. (d). Elaboration of studies of electricity harvesting systems, metering and automation systems, and power converters. (e). Elaboration of studies for the generation, management, and conversion of electricity. (f). Elaboration of studies for the production, management, and conversion of energy-saving (except electricity). (g). Elaboration of studies of mechanical constructions and construction machinery. (h). Elaboration of studies of desalination installations from RES. (i). Elaboration of acoustics, electroacoustics, and sound insulation studies for buildings, studios, and associated areas, including the necessary equipment.
m. Elaboration of studies of smart electricity grids. (a). Elaboration of studies of induction and microwave heating applications in industry with automation and electrical and electronic installation of power supply and automatic control. (b). Define workflows, usage requirements, and software functional specifications for integrated production, administration, business management, and decision support systems. (c). Elaboration and supervision of energy efficiency, upgrading, and energy saving studies of the building envelope. (d). Elaboration and supervision of energy efficiency, upgrading, and energy saving studies of industrial/building facilities. (e). Energy audits/inspections. (f). Elaboration of studies of all kinds of self-propelled Means of Transport and Vehicles (land, water, air). (g). Elaboration of studies of shipyard installations. (h). Elaboration and supervision of Environmental and Environmental Impact Studies and Strategic Environmental Assessment. (k). Elaboration and supervision of studies for hygiene, safety, and protection from fires and explosions (such as SEVESO, BAME, ATEX).
o. Elaboration of studies of installations and networks of Active Fire Safety and Fire Protection.
(a). Elaboration of studies of storage, production, and handling facilities for flammable and toxic materials. (b). Elaboration of studies of industrial manufacturing and non-manufacturing installations for combustion, heating, cooling, air conditioning and ventilation, transportation, distribution, and storage of fluids (gases – liquids) and solid materials after the accompanying technical installations. (c). Elaboration of studies of mechanical engines of all types after their special adaptations. Indicatively, engines with special purpose to serve Industry, Crafts, and Marine, machines are included, internal combustion, gas turbines, steam turbines, and any installation on land, on board, or on-board aircraft. (d). Elaboration of studies on natural gas collection, transport, storage, processing, and final disposal facilities for each use. Elaboration of studies of devices and installations of multiphase flows. (e). Elaboration of studies of pump installations, depressants, and all kinds of related assemblies for any use in fluid flow and water/steam installations under pressure. (f). Elaboration of studies for water supply and sewerage within industrial and non-industrial installations, buildings, and

transportation projects in terms of electrical, mechanical, and construction sites. (g). Elaboration of studies for electrical and mechanical installations of irrigation, water supply, and sewerage for every use. (h). Elaboration of studies of industrial refrigeration systems and installations.

p. Elaboration of welding studies and welding structures. (a). Elaboration of studies of systems and installations for conventional and non-conventional treatment Materials. (b). Elaboration of energy exploitation studies of geothermal fields (low, medium, and high enthalpy) as well as shallow geothermal energy systems. (c). Selection and application of materials in plant and machinery equipment. (d). Elaboration of studies of biomedical devices and installations. (e). Elaboration of studies of industrial ergonomics, logistics, transport, and distribution. (f). Elaboration of Automation and Robotics studies for Electrical and Mechanical Applications.

Staff

Professors

The Professors of the Department are categorized into Full Professors, Associate Professors, and Assistant Professors.
The Professors and Lecturers of the Department are public officials and enjoy functional independence in the exercise of their teaching and research duties. Their obligation is to provide teaching, research-scientific and administrative work.
The Department's Professors are the following (categorized by grade).

Professors

Antonios Gasteratos
Area of Specialization: Robotics, Electronic Engineering (Mechatronics), Industrial Automation, Artificial Vision, Machine Learning
Office: 204, Telephone: 2541079359, e-mail: *agaster@pme.duth.gr*, web: *https://pme.duth.gr/gasteratos/*

Georgios Gaidajis
Area of Specialization: Environmental Management and Industrial Ecology
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Stefanos Katsavounis
Area of Specialization: Algorithmic Approach and Network Scheduling
Office: 206, Telephone: 2541079328, e-mail: *skatsav@pme.duth.gr*, web: *https://pme.duth.gr/katsavounis/*

Panteleimon Botsaris
Area of Specialization: Mechanical Design, Management of Manufacturability, Energy, and Life Cycle Analysis
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Thomas Fotiadis
Area of Specialization: Marketing
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Prodromos Chatzoglou
Area of Specialization: Management Information Systems and Business Decisions
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Associate Professors

Athanasios Vavatsikos
Area of Specialization: Spatial Decision Support Systems
Office: 306, Telephone: 2541079853, e-mail: *avavatsi@pme.duth.gr*, web: *https://pme.duth.gr/vavatsikos/*

Zinon Vlahostergios
Area of Specialization: Thermofluidic Mechanics of Mechanical Devices
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Christina Bampatsou
Area of Specialization: Sustainable Development and Efficiency of Decision-Making Units
Office: 201, Telephone: 2541079358, e-mail: *cmpampat@pme.duth.gr*, web: *https://pme.duth.gr/en/bampatsou-christina/*

Assistant Professors

Angelos Amanatiadis
Area of Specialization: Robotics
Office: 206, Telephone: 2541079340, e-mail: *aamanat@pme.duth.gr*, web:*https://pme.duth.gr/amanatiadis/*

Argyrios Anagnostopoulos
Area of Specialization: Materials Technology
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Anastasios Diamantidis
Area of Specialization: Human Resources Management: Training and Evaluation of Employees in the Industrial Sector
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Theoklitos Karakatsanis
Area of Specialization: Modeling and Control of Electrical Machines
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Georgios Koulinas
Area of Specialization: Project Management
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Alexandros *Xanthopoulos*
Area of Specialization: Industrial Production Systems: Programming, Control, and Simulation of Discrete Production Systems
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Teaching staff under contract

As part of the Teaching Experience Acquisition Program

Dr. Pistofidis Petros
e-mail: *pistofid@pme.duth.gr*, *https://www.researchgate.net/profile/Petros-Pistofidis*

Dr. Ioakeimidou Despoina
e-mail: *dioakeim@pme.duth.gr*, *https://www.researchgate.net/profile/Despoina-Ioakeimidou*

Dr. Keroglou Christoforos
e-mail: *kerogchris@gmail.com*, *https://www.researchgate.net/profile/Christoforos-Keroglou*

Under Presidential Decree 407/80

No entries for the current academic year

Laboratory Teaching Staff

Panagiotis Marhavilas
Specialization: Electrical & Computer Engineering (Dipl., MSc, Phd.)
Area of Specialization: Job Security with emphasis on Industry and Construction
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Athanasios Balafoutis
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Gavriel Chaitidis
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Special Technical Laboratory Staff

Haido Kyritsi
Specialization: Mechanical Engineering (Dipl.Eng, Phd.)
Area of Specialization: Analysis and Design of Structures – Machines
Mechanical Design Laboratory, Office: 101, Telephone: 2541079891, e-mail: *ckyritsi@xan.duth.gr*

Administrative staff

Deputy Secretary

Sofia Gazi
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Administrators

Hypatia Kehaya
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Zenobia Makri
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Kalliopi Nerantzidou
Tel. 25410-79361, e-mail: *knerant@xan.duth.gr*

The Administration of the Department

The Department of Production and Management Engineering has been autonomous since September 2005. The governing bodies of the Department of Production and Management Engineering of the Engineering School of the Democritus University of Thrace are:

- The Head and Deputy Head of the Department
- The Assembly of the Department.

The Head of the Department

The Head of the PME Department is Professor Mr. Gaidajis Georgios, and the Deputy Head Professor is Mr. Fotiadis Thomas.
Tel.: (+30) 25410-79359, Fax: (+30) 25410-79343, e-mail: *head@pme.duth.gr*

Responsibilities of the Head and Deputy Head

The Head has the following responsibilities: a) heads the Department and supervises its smooth operation, b) participates in the Senate and the Deanship representing the Department and proposes to the competent bodies of the Higher Education Institution (HEI) issues related to its needs and operation, c) convenes the Assembly of the Department, chairs its work, prepares the agenda, appoints a rapporteur for the issues of the Assembly if he does not propose the issues himself and ensures the implementation of its decisions, d) convenes the Administrative Board, prepares the agenda, presides over its work and ensures the implementation of its decisions, e) informs the Assembly and the Administrative Board of the decisions of the Senate and the Deanery concerning the Department, as well as the general operation of the HEI, f) monitors the educational operation of the first cycle study programs provided by the Department, if no head of the curriculum has been appointed, g) issues acts of integration of members of Teaching Research Staff on a part-time basis, following a decision of the Assembly, h) grants the leaves of absence of article 157 to the faculty members of the Department, for which the Head is responsible, following a decision of the Assembly of the Department, i) approves the mobility of faculty members, if the mobility is carried out for the needs of the Department, j) forwards the opinions, proposals or suggestions of the Assembly of the Department to the competent bodies of the HEI, k) establishes committees for the study or processing of specific issues within the competence of the Department, l) ensures the maintenance of the records of scientific publications of the Department, m) prepares and approves the annual report of the Department's activities, which it submits for approval to the Assembly of the Department and forwards it to the Deanship, the Senate and the Board of Administration of the HEI, n) exercises any other responsibility defined in the internal rules of operation of the HEI. The Deputy Head performs the duties of the Head if the Head is temporarily absent or indisposed.

The Assembly of the Department

The Assembly of the Department consists of Professors and Lecturers who teach in the relevant curriculum. The number of members, the manner of constitution of the assembly, and the possibility of rotating participation of professors in it are determined by the Organization.
The Assembly shall have the following responsibilities, and any other powers provided for by the provisions of the legislation in force, the Statute, and the Rules of Procedure. Indicative responsibilities of the Department Assembly:

- The election of the Head of the Department,
- The implementation of the curriculum of the Department and the continuous improvement of learning in it,
- The appointment of the tutors of the courses of the curriculum,
- The selection and approval of textbooks for each course of the curriculum,
- The formulation of an opinion to the Deanship on ways to improve the curriculum,
- The formation of teams for the internal evaluation of the curriculum,
- The proposal to the Deanship of the Faculty of Engineering for the announcement of professorships and
- The proposal to the Deanship of the Faculty of Engineering for the establishment of second and third cycle study programs.

The Assembly of the Department of Production and Management Engineering is formed by its Head and Members.

Head of the Assembly of the Department

Gaidajis Georgios, Professor, Department of Production and Management Engineering, Democritus University of Thrace

Members of the Assembly of the Department

Gasteratos Antonios, Professor, Department of Production and Management Engineering, Democritus University of Thrace.
Gaidajis Georgios, Professor, Department of Production and Management Engineering, Democritus University of Thrace
Katsavounis Stefanos, Professor, Department of Production and Management Engineering, Democritus University of Thrace
Botsaris Pantelis, Professor, Department of Production and Management Engineering, Democritus University of Thrace
Fotiadis Thomas, Professor, Department of Production and Management Engineering, Democritus University of Thrace
Chatzoglou Prodromos, Professor, Department of Production and Management Engineering, Democritus University of Thrace
Vavatsikos Athanasios, Associate Professor, Department of Production and Management Engineering, Democritus University of Thrace
Vlahostergios Zinon, Associate Professor, Department of Production and Management Engineering, Democritus University of Thrace
Bampatsou Christina, Associate Professor, Department of Production and Management Engineering, Democritus University of Thrace

Anagnostopoulos Argyrios, Assistant Professor, Department of Production and Management Engineering, Democritus University of Thrace
Amanatiadis Angelos, Assistant Professor, Department of Production and Management Engineering, Democritus University of Thrace
Diamantidis Anastasios, Assistant Professor, Department of Production and Management Engineering, Democritus University of Thrace
Theoklitos Karakatsanis, Assistant Professor, Department of Production and Management Engineering, Democritus University of Thrace
Koulinas Georgios, Assistant Professor, Department of Production and Management Engineering, Democritus University of Thrace
Xanthopoulos Alexandros, Assistant Professor, Department of Production and Management Engineering, Democritus University of Thrace
Taouktsoglou Anastasia, Member of the Department of Production and Management Engineering, Democritus University of Thrace
Kyritsi Chaido, Member of the Department of Production and Management Engineering, Democritus University of Thrace

Responsibilities of the General Assembly of the Department

The Assembly of the Department has the following responsibilities: a) formulates the general educational and research policy of the Department and its course of development within the framework of the policy of the School and the Institution, b) proposes to the Deanship the development plan of the Department, which includes the elements of para. 3 of article 27, c) prepares the Internal Regulation of the Department and submits it for approval to the Senate of the Higher Education Institution (HEI), d) prepares the register of subjects of the Department in accordance with article 144, e) prepares the register of internal and external electors for the election and development of the members of the Teaching Research Staff, in accordance with article 145, f) provides an opinion on the establishment, merger, division, renaming, change of scientific field or abolition of Sectors of the Department, g) prepares and submits for approval to the Deanship the annual recruitment plan for faculty members according to the educational and research needs of the Department and ranks in descending order of priority the subjects to be announced, h) prepares and submits for approval to the Deanship the annual recruitment plan for Specialist Teaching Staff, Laboratory Teaching Staff and Special Technical Laboratory Staff according to the needs of the Department, i) recommends the change of subject of a faculty member in accordance with article 152, following the opinion of the General Assembly of the Department to which it belongs, j) recommends to the Senate the establishment of university laboratories, clinics and museums established in the Department or in Sectors of the Department, ja) assigns the teaching work to the members of the Teaching and Research Staff, Laboratory Teaching Staff and Special Technical Laboratory Staff of the Department and the additional teaching and research staff of Chapter K' for the first and second cycle programs of study of the Department, jb) recommends to the Senate the members of the curricula committees of para. 8 of article 74 and appoints a person responsible for each first cycle study program, if the Department organizes more than one program of

study, jc) recommends the establishment, modification or abolition of first, second and third cycle study programs of the Department, as well as the foreign language study programs of Chapter IA', jd) prepares the guide of each first cycle study program and the internal regulations of second and third cycle study programs, and submits them for approval to the Senate of the HEI, je) approves the list of textbooks distributed for each educational activity of the curriculum, jf) recommends to the Senate the appointment of a Sector Director, a university laboratory, a university clinic and a museum, when there are no candidates, jg) awards the degrees of the programs of study organized by the Department, jr) recommends to the Senate the award of the title of Emeritus and Honorary Professor and Honorary Doctorate, js) approves the inclusion of a faculty member in part-time employment and the granting of scientific leave, unpaid leave and parallel employment in foreign Universities, k) provides an opinion to the Senate on the transfer of faculty members, teaching and laboratory staff from and to another Department of the same or another HEI in accordance with article 153, ka) recommends to the Quality Assurance Committee the formation of teams for the internal evaluation of the Department, the individual academic units operating in it and its programs of study, kb) recommends to the Deanship regarding the needs of the Department in additional teaching staff, w) invites and selects the Visiting Professors referred to in article 171, kc) announces the positions of teaching assistants and establishes committees for their evaluation in accordance with article 173, kd) assigns postgraduate students to carry out auxiliary teaching work in first cycle study programs and to doctoral candidates to carry out auxiliary teaching work in first and second cycle programs of studies of the Department, ke) grants scholarships of excellence and rewarding scholarships to students of the programs of study of the Department, kf) seeks all kinds of funding, donations, financial aid and sponsorships to support the educational, research and general activities of the Department and to upgrade its infrastructure, and kg) recommends to the Deanship regarding the needs of the Department and for the smooth and orderly conduct of the educational and research work of the Department and its individual academic units, as well as for the execution of projects and studies for the maintenance or upgrade of the infrastructure and equipment that have been made available to the Department, kh) establishes committees for the study or processing of specific issues falling within its competences, l) provides permission for the exercise of teaching, research, laboratory or clinical and generally scientific work by a faculty member, Special Teaching Staff, Laboratory Teaching Staff and Special Technical Laboratory Staff of the Department in more than one Sector of the same Department, at his request and the opinion of the Department or the Department where the project is to be carried out, la) decide on the allocation of staff serving in the Department or Sectors of the Department, lb) approves the transfer of a staff member from one Sector to another of the same Department, at the request of the interested party and the opinion of the Sectors, lc) exercise any competence relating to issues of the Special Teaching Staff, Laboratory Teaching Staff and Special Technical Laboratory Staff of the Department, if the competence is not specifically assigned to another body of the HEI by virtue of a special provision and ld) exercises any other competence provided for in the internal rules of operation of the HEI.

Laboratories

The Department of Production and Management Engineering has been established (Government Gazette: 838/B-A3362/14-5-2015) and operates 14 laboratories to support educational and research work. In detail, the laboratories of the Department are:

Laboratory of Industrial Production

The laboratory covers educational, research, and development needs in the fields of production planning, production simulation, computer-aided production, etc.
Director: Assistant Professor Alexandros Xanthopoulos

Laboratory of Robotics and Automation

The laboratory covers educational, research, and development needs in the fields of automation systems, robotic systems, self-propelled robots, vision systems, simulation of robotic systems, intelligent systems, etc.
Director: Professor Antonios Gasteratos

Laboratory of Product Design

The laboratory covers educational, research, and development needs in the field of new product and process design, including: computer-aided design, parallel engineering, product lifecycle management, product structure management, rapid prototyping and fast tools, fictitious prototyping and production, etc.
Director: Professor Panteleimon Botsaris

Laboratory of Logistics

The laboratory covers educational, research, and development needs in the field of business logistics, including: inventory management, storage systems, transportation and communication systems (suppliers-business-consumers), etc.
Director: Assistant Professor Alexandros Xanthopoulos

Laboratory of Ergonomics and Occupational Safety

The laboratory covers educational, research, and development needs in the fields of ergonomic work analysis, work environment design, human-machine communication, work safety, etc.
Director: Assistant Professor Koulinas Georgios

Laboratory of Financial Engineering

The laboratory covers educational, research, and development needs in the fields of management accounting, cost accounting, short-term and long-term financial management, investment analysis, financial studies, mergers, portfolio management, financial modeling, etc.
Director: Associate Professor Athanasios Vavatsikos

Laboratory of Marketing

The laboratory covers educational, research, and development needs in the field of Marketing, which includes: market research, forecasting systems, pricing policy, product promotion, e-commerce, etc.
Director: Professor Thomas Fotiadis

Laboratory of Management Information Systems

The laboratory covers educational, research, and development needs in the fields of databases, decision support systems, decision-making methods, modeling techniques and methods, project management, operational research model algorithms, etc.
Director: Professor Prodromos Chatzoglou

Laboratory of Fluid Mechanics and Hydrodynamic Machines

The laboratory covers educational, research and development needs in the fields of fluid medium properties, laminar and turbulent flow conservation laws, calculations of pipes, pumps and turbines, elements of wing theory, analysis and design of hydraulic networks, hydroelectric projects and wind systems (with aspects of their economic and technical analysis data), advanced turbulence modelling methodologies, flow velocity and pressure incompressible measurements in open wind tunnel etc.
Director: Associate Professor Zinon Vlahostergios

Laboratory of Thermodynamics and Thermal Machines

The laboratory covers educational, research, and development needs in the fields of classical thermodynamics, thermodynamic changes of phases of matter, energy thermodynamic quantities, thermodynamic axioms, entropy, combustion, heat transfer, thermal and cooling engines, etc.
Director: Assistant Professor Theoklitos Karakatsanis

Laboratory of Materials Technology

The laboratory covers educational, research, and development needs in the fields of atomic theory, atomic bonds, states of matter, heterogeneous systems, corrosion and protection of metals and alloys, engineering, strength of materials, physical metallurgy, technology of metallic-ceramic-polymeric and composite materials, casting and welding, machining engineering and technology, machine tools, metrology, etc.
Director: Professor Stefanos Katsavounis

Laboratory of Mechanical Design

The laboratory covers educational, research, and development needs in the fields of mechanical design with computational methods of machine elements (rivets, screws, welding, shafts, bearings, etc.), lifting machines, conveyor belts, metal structures, mechanisms, waste energy, manufacturing processes, etc.
Director: Professor Panteleimon Botsaris

Laboratory of Computational Mathematics

The laboratory covers educational, research, and development needs in the broader field of mathematics (applied and theoretical) and especially computational processes with the use of computers and specialized software packages, operational research, probability, statistics, numerical analysis, and programming (C, C++, etc.). It also supports distance learning at the undergraduate and postgraduate levels.
Director: Professor Stefanos Katsavounis

Laboratory of Environmental Management and Industrial Ecology

The laboratory covers educational, research, and development needs in the fields of environmental management and industrial ecology.
Director: Professor Gaidajis Georgios

Secretariat

The Secretariat of the Department is responsible for making all kinds of undergraduate registrations, maintaining the relevant file, issuing official certificates and documents, communicating with other administrative services, serving all students as well as the teaching and other staff of the Department in administrative matters.
The Secretariat of the Department is headed by the Deputy Secretary Sofia Gazi.

Secretariat Contact Details

Address: Democritus University of Thrace, Engineering School of Xanthi, Vas. Sophias 12, Building 1, 67100, Xanthi.
Tel. 1: (+30) 25410-79345, Tel. 2: (+30) 25410-79302, Fax: (+30) 25410-79304, E-mail: info@pme.duth.gr
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Student Affairs Service

Address: Democritus University of Thrace, Engineering School of Xanthi, Vas. Sophias 12, Building 1, 67100, Xanthi.
Telephone: (+30) 25410-79360, E-mail: fititika@pme.duth.gr
Opening hours: Monday-Friday: 11:30-13:30

Electronic Secretariat

The following templates are available for use on the Department's website:
(see *https://pme.duth.gr/proptixiaka/egrammateia/*):

- Application for interruption of studies
- Application for a certificate
- Application for qualifying exams
- Application for a PhD certificate
- Certificate of attendance
- General application to the PME Department
- Declaration for a diploma thesis
- Declaration N1599

1st YEAR - 1st SEMESTER						
CODE	**COURSE TITLE**	**Course Type**	**Theory**	**Exercises**	**Labs**	**ECTS**
A1Y	LINEAR ALGEBRA AND DISCRETE MATHEMATICS	SCIENTIFIC AREA	3	1	1	5
A2Y	INTRODUCTION TO COMPUTER SCIENCE	BACKGROUND	2		2	5
A3Y	MATHEMATICAL ANALYSIS I	SCIENTIFIC AREA	3	1	1	5
B11AT	MECHANICAL DESIGN I	BACKGROUND	2		2	5
A7Y	MANAGEMENT SYSTEMS FOR ENGINEERS	BACKGROUND	3	1	1	5
A9Y	GENERAL PHYSICS	BACKGROUND	2	1	1	5
1st YEAR - 2nd SEMESTER						
CODE	**COURSE TITLE**		**Theory**	**Exercises**	**Labs**	**ECTS**
B1Y	PROBABILITY AND STATISTICS	BACKGROUND	3	1		4
B2Y	MATHEMATICAL ANALYSIS II	SCIENTIFIC AREA	3	1	1	6
C4Y	APPLIED THERMODYNAMICS	BACKGROUND	3	2		5
B5Y	STRUCTURED PROGRAMMING (C)	BACKGROUND	2		2	5
B10Y	OPERATIONAL RESEARCH	SCIENTIFIC AREA	2	1	1	5
B12Y	RESEARCH METHODOLOGY	BACKGROUND	2	1	1	5
2nd YEAR - 3rd SEMESTER OF STUDIES						
CODE	**COURSE TITLE**		**Theory**	**Exercises**	**Labs**	**ECTS**
C3Y	MATERIALS TECHNOLOGY I	BACKGROUND	3	1		5
I02	PRODUCT DESIGN	SCIENTIFIC AREA	2		2	5
ST9Y	HEAT TRANSFER	BACKGROUND	3	1		6
G5Y	MECHANICS I (STATICS)	BACKGROUND	2	2		6
Z06	MARKETING	BACKGROUND	3	1		5
OPTIONAL COMPULSORY (1)						3

2nd YEAR - 4th SEMESTER OF STUDIES

CODE	COURSE TITLE		Theory	Exercises	Labs	ECTS
D1Y	DIFFERENTIAL EQUATIONS	SCIENTIFIC AREA	3	1		5
D2AY	ELECTRICAL CIRCUITS	BACKGROUND	3	1	1	6
D9Y	MECHANICS II (STRENGTH OF MATERIALS)	BACKGROUND	3	2		5
D4Y	INFORMATION SYSTEMS	SCIENTIFIC AREA	3	1		5
D7Y	PRODUCTION SYSTEMS	SCIENTIFIC AREA	2	1	2	6
OPTIONAL COMPULSORY (1)						3

3rd YEAR - 5th SEMESTER

CODE	COURSE TITLE		Theory	Exercises	Labs	ECTS
E8Y	MECHANICS III (DYNAMICS)	BACKGROUND	2	1	2	6
E3Y	FLUID MECHANICS	SCIENTIFIC AREA	3	1		6
E4Y	PRODUCTION TECHNOLOGIES	SCIENTIFIC AREA	3	1	2	5
E1E	ELECTRIC MACHINES	BACKGROUND	2	1	1	5
ST10Y	INDUSTRIAL & TECHNOLOGICAL MARKETING	BACKGROUND	3	1		5
OPTIONAL COMPULSORY (1)						3

3rd YEAR - 6th SEMESTER

CODE	COURSE TITLE		Theory	Exercises	Labs	ECTS
ST7Y	INDUSTRIAL PROCESS SYSTEMS	SCIENTIFIC AREA	3	1		5
ST2Y	ELECTRONICS	BACKGROUND	3	1	1	6
H07	INDUSTRIAL ELECTRICAL INSTALLATIONS	BACKGROUND	2	1	1	5
E1AY	MECHANICAL DESIGN II	SKILLS DEVELOPMENT	2	1	2	6
D4AE	HUMAN RESOURCES MANAGEMENT	SCIENTIFIC AREA	2	1	1	5
OPTIONAL COMPULSORY (1)						3

4th YEAR - 7th SEMESTER						
CODE	**COURSE TITLE**		**Theory**	**Exercises**	**Labs**	**ECTS**
Z01	AUTOMATIC CONTROL SYSTEMS	BACKGROUND	2	1	1	6
Z13	MECHATRONICS	BACKGROUND	2	1	1	5
H04	DECISION SUPPORT SYSTEMS	SCIENTIFIC AREA	2	1	1	5
I04	PROJECT AND PROGRAMME MANAGEMENT	BACKGROUND	3	1	1	5
Z07	INFORMATION SYSTEMS MANAGEMENT	SCIENTIFIC AREA	3	1		6
OPTIONAL COMPULSORY (1)						3
4th YEAR - 8th SEMESTER						
CODE	**COURSE TITLE**		**Theory**	**Exercises**	**Labs**	**ECTS**
H01	ROBOTICS	BACKGROUND	3	1	1	6
H03A	ENVIRONMENTAL ENGINEERING	SCIENTIFIC AREA	3		1	5
Z11	TECHNOLOGICAL ECONOMICS	SCIENTIFIC AREA	2	2		5
H15	MOTION TRANSMISSION SYSTEMS	SCIENTIFIC AREA	2	2	1	6
H14E	COMPUTATIONAL INTELLIGENCE & MACHINE LEARNING	SCIENTIFIC AREA	2	1	1	5
OPTIONAL COMPULSORY (1)						3
5th YEAR - 9th SEMESTER						
CODE	**COURSE TITLE**		**Theory**	**Exercises**	**Labs**	**ECTS**
H10	FLUID DYNAMICS MACHINES	SCIENTIFIC AREA	2	1	1	5
H13	SUPPLY CHAIN MANAGEMENT	SCIENTIFIC AREA	2	1	1	5
I07	TECHNOLOGICAL INNOVATION AND ENTREPRENEURSHIP	SCIENTIFIC AREA	2	1	1	5
Z14Y	MENTAL ERGONOMICS & INTERACTIVE DESIGN	SCIENTIFIC AREA	3	1	2	4
H12	INVENTORY THEORY	BACKGROUND	3	1		5
OPTIONAL COMPULSORY (2)						6
5th YEAR - 10th SEMESTER						
DISSERTATION (DISSERTATION) 30 HOURS / WEEK						30

The diploma grade is calculated as the average grade achieved by the graduate during his/her examination in the courses of the curriculum, weighted by five-sixths (5/6) and summed by the weighted by one-sixth (1/6) grade achieved during the examination of his/her dissertation.

OPTIONAL COMPULSORY COURSES FOR WINTER SEMESTERS						
CODE	**COURSE TITLE**		**Theory**	**Exercises**	**Labs**	**ECTS**
EP08	ALGORITHMIC OPTIMIZATION METHODS	BACKGROUND	2		1	3
Z02	DATA ANALYSIS	SKILLS DEVELOPMENT	2	1		3
EP13	BIG DATA ANALYTICS	SPECIAL BACKGROUND	2	0	1	3
C2Y	OBJECT-ORIENTED PROGRAMMING C++	BACKGROUND	2		1	3
EP4	RELIABILITY & MAINTENANCE OF TECHNOLOGICAL SYSTEMS	SCIENTIFIC AREA	2		1	3
E5Y	DATABASES	SCIENTIFIC AREA	2		1	3
I10	INDUSTRIAL ELECTRONICS AND AUTOMATION	SCIENTIFIC AREA	2		1	3
I08	INTELLIGENT INDUSTRIAL PRODUCTION SYSTEMS	SCIENTIFIC AREA	2		1	3
I06	THERMAL MACHINES	SCIENTIFIC AREA	2	1		3
G4E	GRAPH THEORY	SCIENTIFIC AREA	2	1		3
I03	INTEGRATED INDUSTRIAL INFORMATICS SYSTEMS	SKILLS DEVELOPMENT	2		1	3
EP6	ORGANIZATIONAL BEHAVIOR	SCIENTIFIC AREA	3			3
EP12	ELEMENTS OF LAW & TECHNICAL LEGISLATION	SCIENTIFIC AREA	2	1		3
ST4E	STOCHASTIC PROCESSES	SCIENTIFIC AREA	2	1		3
I11	STRATEGIC PLANNING	SKILLS DEVELOPMENT	3			3
H06	FINANCIAL MANAGEMENT	SCIENTIFIC AREA	3			3
EP0	INTERNSHIP PROGRAM	SKILLS DEVELOPMENT			3	3
*	PATTERN RECOGNITION		2	1	2	3
*	MATHEMATICAL SOFTWARE		2	1	2	3
**	WASTEWATER TECHNOLOGY AND MANAGEMENT I					3
**	ENVIRONMENTAL QUALITY ASSURANCE TECHNIQUES					3

* Course provided by the Department of Electrical & Computer Engineering of the Democritus University of Thrace
** Course provided by the Department of Environmental Engineering of the Democritus University of Thrace

ELECTIVE COMPULSORY COURSES FOR SPRING SEMESTERS						
CODE	**COURSE TITLE**		**Theory**	**Exercises**	**Labs**	**ECTS**
ST3E	NUMERICAL ANALYSIS	BACKGROUND	2	1	1	3
EP10	GEOGRAPHIC INFORMATION SYSTEMS	SKILLS DEVELOPMENT	2		1	3
Z15	OCCUPATIONAL SAFETY & HEALTH MANAGEMENT	SCIENTIFIC AREA	2	1		3
EP7	PROJECT RISK MANAGEMENT	BACKGROUND	2		1	3
I05	TOTAL QUALITY MANAGEMENT	SCIENTIFIC AREA	2	1		3
ST8Y	MANAGEMENT ACCOUNTING	SKILLS DEVELOPMENT	3			3
E9E	DYNAMIC PROGRAMMING	BACKGROUND	2	1		3
C5E	INTRODUCTION TO ECONOMIC ANALYSIS	SCIENTIFIC AREA	2	1		3
Z05	QUALITY CONTROL	SCIENTIFIC AREA	3			3
EP1	MARKET RESEARCH	SCIENTIFIC AREA	2	1		3
I01	SIMULATION	SKILLS DEVELOPMENT	2		1	3
EP2	STRATEGIC MARKETING	SCIENTIFIC AREA	2	1		3
C7Y	COMPUTER-AIDED DESIGN (CAD)	SKILLS DEVELOPMENT	1		2	3
EP5	SERVICE PLANNING	SCIENTIFIC AREA	2		1	3
EP3	COMPUTER VISION	SCIENTIFIC AREA	2		1	3
EP11	MATERIALS TECHNOLOGY II	BACKGROUND	2	1		3
EP0	INTERNSHIP PROGRAM	SKILLS DEVELOPMENT			3	3
EP9	GEOMETRIC TRANSFORMATIONS***	SCIENTIFIC AREA	2	1		3
*	SCIENTIFIC CALCULATIONS (TMA386)		2	1	2	3
**	ENERGY DESIGN OF BUILDINGS					3
**	WASTEWATER TECHNOLOGY & MANAGEMENT I*					3

* Course provided by the Department of Electrical & Computer Engineering of the Democritus University of Thrace.
** Course provided by the Department of Environmental Engineering of the Democritus University of Thrace.

***The course is not eligible in the current academic year.

Course Syllabus Outline

1st Year - 1st Semester of Studies

A9Y: General Physics (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructor: Professor George Gaidajis
, course webpage: *https://pme.duth.gr/proptixiaka/courses/a9y/*
eClass: *https://eclass.duth.gr/courses/TME164/*

Course Description

Space and time, units, significant digits, acceleration of gravity, motion of projectiles, relativity of motion, Galileo transformations, 1st, 2nd, 3rd Newton's law, the four fundamental forces, weight, friction, Hooke's law. Work in one and three dimensions, kinetic, dynamic gravitational energy, conservation forces, conservation of energy, law of gravity, Kepler laws, momentum of a particle system, center of mass and its motion, collisions, motion of a solid body, moment of inertia, angular momentum of a solid body, torque of torsion, conservation of angular momentum. Static solid bodies, levers and pulleys, harmonic motion, simple, natural, and torsional pendulum, oscillations. Dot gas law, Maxwell distribution, heat as a form of energy, thermal expansion, thermal equilibrium, adiabatic equation.

Purpose of the course

Presentation of a modern view of classical mechanics and thermodynamics for the student of Polytechnic schools who mainly needs and applies Physics as a tool and is not interested, for example, in the atomic structure of matter. Since Physics cannot be separated from its function, the theoretical part of the course is presented from the point of view of physicists, while the practical part (practice exercises, applications) emphasizes examples of everyday life and its interconnection with applications of technical engineering.

A1Y: Linear Algebra and Discrete Mathematics (Theory:3, Exercises:1, Labs:1, ECTS:5)

Instructor: Dr. Keroglou Christoforos
course webpage: *https://pme.duth.gr/proptixiaka/courses/a1y/*
eClass:

Course Description

Systems of linear equations. The n-dimensional Euclidean space. Algebra of matrices. Determinants. Scalable and reversible tables, applications. Vector spaces, subspaces, bases, and dimensions. Elementary table transformations. Eigenvalues and eigenvectors. Characteristic matrix equation. Diagonalization. Identical tables, square forms. Line illustrations. Combinatorics, Permutation and graph theory, Trees, Monoids.

Purpose of the course

Introduction of students to a comprehensive view of the properties and basic rules of behavior of the mathematical object of the mn table, as a tool for transferring encoded information of a large flow. Familiarity with the applications of matrices in solving linear systems, optimization algorithms (Simplex, etc.), robotics – kinematics (transfer and rotation tables). Training students in the calculation of derivatives and integrals using the method of tables.

A2Y: Introduction to Computer Science (Theory:2, Exercises:0, Labs:2, ECTS:5)

Instructor: Professor Stefanos Katsavounis, Dr. Balafoutis Athanasios,
course webpage: *https://pme.duth.gr/proptixiaka/courses/a2y/*
eClass: *https://eclass.duth.gr/courses/TME120/*

Course Description

SECTION 1: ALGORITHMS: Introduction & Basic concepts-Characteristics and properties of algorithms-Basic algorithmic structures-Tables and fundamental algorithms (numerical processing, searching, classification)-Laboratory exercises using pseudocode and language C. SECTION 2: INTRODUCTION TO PROGRAMMING LANGUAGE C: The development environment Visual Studio 2008 Express Edition-Constants, variables, data types, operators, priorities, expressions, components and program structure-Commands and I/O specifications (scanf, printf)-Program flow control commands (if, switch)-Repeat commands (while, do-while, for)-One-dimensional arithmetic tables-Laboratory exercises with C language

A3Y: Mathematical Analysis I (Theory:3, Exercises:1, Labs:1, ECTS:5)

Instructor: Dr. Anastasia Taouktsoglou
webpage: *https://pme.duth.gr/proptixiaka/courses/a3y/*
eClass: *https://eclass.duth.gr/courses/TME166/*

Course Description

Functions of a real variable. Limits and continuity of functions. Derivative function. Physical, economic, and geometric interpretation of the derivative. Differential and higher-order derivative. Elements of combinatorial analysis. Exponential, logarithmic, trigonometric, and hyperbolic functions. Study of function graphs. Optimization problems. Taylor- McLaurin polynomials. Sequences and series. The indefinite integral. Integration methods. The Riemann definite integral and applications. Improper integrals and applications.

Purpose of the course

Introduction of students to a comprehensive view of the properties and basic rules of calculus, which concerns the study of functions of a real variable. Familiarization with the concepts of continuity, limit, instantaneous rate of change, "infinite sum", approximation, error estimation, optimization, and integration.

B11AT: Mechanical Design I (Theory:2, Exercises:0, Labs:2, ECTS:5)

Instructors: Professor Panteleimon Botsaris, Dr. Haido Kyritsi
webpage: *https://pme.duth.gr/proptixiaka/courses/b11at/*
eClass: *https://eclass.duth.gr/courses/TME111/*

Course Description

Introduction to engineering drawing principles, regulations, methods, and materials. The course aims to introduce the principles of mechanical drawing, the basic regulations of mechanical design, as well as the main design materials.

Purpose of the course

The candidate Engineer, after the end of the course, should be able to read and understand simple mechanical drawings and produce views and sections of light mechanical parts and structures.

A7Y: Management Systems for Engineers (Theory:3, Exercises:1, Labs:1, ECTS:5)

Instructor: Assistant Professor Anastasios Diamantidis
webpage: *https://pme.duth.gr/proptixiaka/courses/a7y/*
eClass: *https://eclass.duth.gr/courses/TME167/*

Course Description

General introduction to the principles of administration. Systems theory and methodology. Models of perception of intra- and extra-corporate reality. Administrative functions (planning, organization, control, and management). Administrative skills. Development of examples and practical cases.

Purpose of the course

The objectives of the course are to provide students with the necessary knowledge to understand the content and dynamics presented in the management of socio-economic organizations in the private and public sectors. Emphasis is placed both on answering the questions mentioned above, and in particular on the relationship of the person exercising management, both with customers and with the institution in which he is employed. With the help of current examples drawn from real socio-economic development, it is expected that each student will acquire critical thinking and a substantial perception of the subject.

1st Year - 2nd Semester of Studies

B1Y: Probability and Statistics (Theory:3, Exercises:1, Labs:0, ECTS:4)

Instructor: Dr. Panagiotis Marhavilas
webpage: *https://pme.duth.gr/proptixiaka/courses/b1y/*
eClass:

Course Description

Descriptive statistics. Basic principles of probability theory. Random variables and probability distributions (Discrete random variables, Continuous random variables). Inferential statistics (Point estimates, Confidence intervals, Hypothesis tests)

Purpose of the course

By the end of the semester, students should understand: • The difference between Descriptive and Inferential Statistics. • The basic concepts of probability and their application to problems. • Important methodologies and tools for solving problems related to Probability Theory. • Important concepts of statistical estimation, such as Confidence Intervals and Hypothesis Testing. • The importance of proper compilation of a report, which is a very important part of statistical research.

B2Y: Mathematical Analysis II (Theory:3, Exercises:1, Labs:1, ECTS:6)

Instructor: Dr. Anastasia Taouktsoglou

webpage: *https://pme.duth.gr/proptixiaka/courses/b2y/*
eClass: *https://eclass.duth.gr/courses/TME225/*

Course Description

The main purpose of this course is to provide students with the necessary "language" to understand, interpret, evaluate, and describe concepts and phenomena faced in the courses of the Department's Curriculum, in order for students to be able to solve specific problems in the science of Production Engineering and Management. In the first part of the course, students come into contact with the concept of scalar multivariate functions and their applications in physical and economic mathematical models. Students systematically study domains of multivariate definitions, their graph, when it exists, as well as alternative ways of representing the graph, when it does not exist. To this purpose, they must recall knowledge of conic sections and acquire knowledge of quadric surfaces. They study the instantaneous rate of change of a scalar multivariate function through the notion of partial derivative. They learn to compute partial derivatives and directional derivatives of scalar multivariate functions and understand their use in applications. They study the independence of functions through functional matrices and solve problems of maximizing and minimizing scalar multivariate functions. They learn the approximation of a multivariate function using Taylor and MacLaurin polynomials. Then, they calculate areas and volumes of complex shapes using double and triple integrals. In the second part of the course, students come into contact with the concept of vector multivariate functions and their applications in physical and economic mathematical models. They learn the concepts of gradient, divergence, and rotation, the concept of solenoidal, irrotational, and conservative fields, as well as their applications. They learn to compute line and surface integrals in order to be able to study flows and circulations of vector fields in the plane and space. Finally, they analyze economic applications and applications in industrial production of the concept of scalar and vector multivariate functions.

Purpose of the course

The successful completion of the course enables students to develop their skills in order to be able to

- recognize the role of multivariate functions, scalar and vector, in physical problems, such as problems related to the physical environment (flow of electric current in circuits, heat loss, population increase and decrease, etc.), but also problems related to economic and production quantities
- solve problems of maximizing and minimizing multivariate functions
- study the graph of a multivariate function, when possible

To

- compute partial derivatives and total differentials of higher-order multivariate functions
- develop Taylor and MacLaurin series and approximate multivariate functions with polynomials

o compute double and triple integrals of scalar multivariate functions
To calculate areas and volumes
o compute line and surface integrals of vector multivariate functions
o apply the concept of multivariate function, scalar or vector, to describe and model physical systems or phenomena in mathematical terms and equations
o apply the concept of multivariate function, scalar or vector, to mathematical models supporting decision-making processes in industrial management and production in general.
The successful completion of the course provides the student with the opportunity to organize and use the knowledge acquired in solving specific problems, and to understand and summarize scientific work in the respective mathematical fields.

C4Y: Applied Thermodynamics (Theory:3, Exercises:2, Labs:0, ECTS:5)

Instructor: Associate Professor Zinon Vlahostergios
webpage: *https://pme.duth.gr/proptixiaka/courses/q4y/*
eClass: *https://eclass.duth.gr/courses/TME258/*

Course Description

The course includes the following material: Basic concepts of thermodynamics and Fundamental Principles, Definitions of key terms, Energy and work, The First Law of Thermodynamics, Energy and mass transfer systems, and General energy analysis. Phases and phase-change processes, Property diagrams and tables, Equations of state for gases, Compressibility factor. Closed Thermodynamic Systems, Internal energy and enthalpy, Energy balance for closed systems. Energy and mass transfer in control volumes, Steady-flow systems (nozzles, diffusers, valves, mixing, compressors, turbines, heat exchanger descriptions), Unsteady-flow processes. Heat engine, refrigerator, and heat pump. Principle of entropy increase, Isentropic processes, Isentropic efficiencies of steady-flow devices, Entropy balance. Gas Power Cycles, Otto cycle, Diesel cycle, Stirling and Ericsson cycles, Brayton Cycle and Propulsion Systems, Ideal and real Brayton cycles, basic principles of Regeneration, intercooling, reheating, Jet propulsion cycles, and aircraft engine architecture. Steam Power Cycles, Power generation using steam cycles, Rankine cycle (ideal, real, with aspects of reheating, regeneration). Vapor-compression refrigeration cycles (ideal and real), Refrigerants and their properties.

Purpose of the course

The course provides an in-depth understanding of thermodynamic laws and system modeling, equipping students with analytical tools to evaluate energy conversion processes and the performance of thermodynamic cycles. It emphasizes the application in the design and optimization of energy systems relevant to production, manufacturing, and industrial operations.

B5Y: Structured Programming (Language C) (Theory:2, Exercises:0, Labs:2, ECTS:5)

Instructors: Professor Stefanos Katsavounis, Dr. Balafoutis Athanasios
webpage: *https://pme.duth.gr/proptixiaka/courses/b5y/*
eClass: *https://eclass.duth.gr/courses/419355/*

Course Description

Functions: definition, declarations, calls. Simple void functions, inheriting parameters to functions, and functions that return one or more values. Pointers & memory addresses. Tables, indicators, and functions. Two-dimensional tables. Memory management, dynamic memory allocation. Commands & functions. Strings, alphanumeric functions. Structs and arrays of structures. Serial files, creation, and access. Introduction to linear data structures: lists, stacks, and queues. Laboratory exercises

B10Y: Operational Research (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructor: Assistant Professor Georgios Koulinas
webpage: *https://pme.duth.gr/proptixiaka/courses/b10y/*
eClass: *https://eclass.duth.gr/courses/419356/*

Course Description

Formulation of linear programming problems. Formulation by the method of direct approach and the input-output approach. Geometry of LP. Graphical solution of LPs. Formal form and properties of the optimal solution. The Simplex algorithm. Initial solution by the two-phase method. Initial solution by the method of the great M. Formation of dual problems. Economic interpretations. Relations between primary and dual problems. Solving linear problems with Excel. Use of the Solver tool. Improved use of Excel. Excel reports (Response, Sensitivity analysis, Limits), Applications: Problems of transportation, transshipment, production planning (product management) in the short-medium and long term.

Purpose of the course

Introduction of students to approaching and solving problems of allocating limited resources or means to alternative and competitive activities in the best possible way (problems of "pie" distribution). Familiarization with modeling techniques and methods of the iterative Simplex algorithm in the problems of making optimal decisions in Production planning.

B12Y: Research Methodology (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructors: Professor Prodromos Chatzoglou, Assistant Professor Anastasios Diamantidis

webpage: *https://pme.duth.gr/proptixiaka/courses/b12y/*
eClass: *https://eclass.duth.gr/courses/TME213/*

Course Description

Concept and features of scientific and business research. Business research typology. Identifying, delineating, and formulating a research problem. Critical literature review. Design of the research model and identification of research hypotheses. Selection of research strategy and sample identification. Preparation of a research proposal. Sources of secondary business data collection. Collection of primary data through questionnaire, interview and/or observation. Qualitative and quantitative data analysis (descriptive analysis, factorial analysis, correlation, and regression analysis). Writing a research report. Oral presentation of research findings.

Purpose of the course

The course aims to introduce students to the design, elaboration, implementation and writing of a research paper based on either bibliographic or empirical research and, at the same time, to examine techniques of oral presentation of research findings. The course also emphasizes the use of computers and specialized statistical software (SPSS) with the use of a series of laboratory courses.

2nd Year - 3rd Semester of Studies

C3Y: Materials Technology I (Theory:3, Exercises:1, Labs:0, ECTS:5)

Instructor: Assistant Professor Argyrios Anagnostopoulos
Σελίδα μαθήματος: *https://pme.duth.gr/proptixiaka/courses/g3y/*
eClass: *https://eclass.duth.gr/courses/419350/*

Course Description

The course introduces students to the fundamental principles of materials science and technology, with emphasis on the relationship between microstructure, properties, and industrial applications. Topics include atomic and crystal structure, phase diagrams and transformations, mechanical, thermal, and electrical properties, as well as basic processing methods. The course provides the necessary tools for understanding and selecting materials in construction and industrial processes.

Purpose of the course

The purpose of the course is to develop a solid understanding of the structure–properties–applications relationship of materials and their connection to practice, enabling students to select and evaluate materials in mechanical constructions, industrial installations, and energy systems.

I02: Product Design (Theory:2, Exercises:0, Labs:2, ECTS:5)

Instructor: Dr. Pistofidis Petros
webpage: *https://pme.duth.gr/proptixiaka/courses/th02/*
eClass: *https://eclass.duth.gr/courses/TME237/*

Course Description

Product design lifecycle and process. Methods of investigating customer needs and creating specifications. Organization of a working group to plan and communicate with other departments of the enterprise. Creative methods of developing the product idea and evaluating it. Detailed design, operation, and behavior analysis, use of modeling and simulation, CAD/CAM systems, finite element analysis, parallel mechanics. Methods of evaluation design, production, assembly, and maintenance. New product development management methodologies

ST9Y: Heat Transfer (Theory:3, Exercises:1, Labs:0, ECTS:6)

Instructor: Associate Professor Zinon Vlahostergios

webpage: *https://pme.duth.gr/proptixiaka/courses/st9y/*
eClass: *https://eclass.duth.gr/courses/TME269/*

Course Description

The course covers the following topics: Introduction – Basic Concepts and Overview of the Subject Area, The concepts of conduction, convection, and radiation in heat transfer. Steady-State Heat Conduction. Thermal contact resistance and generalized thermal resistance networks. Heat Conduction in Cylinders and Spheres. Extended surfaces (fins): efficiency and effectiveness of fins. Heat transfer in combinations of common geometries. Fundamentals of Convective Heat Transfer. Nusselt number. Basic fluid mechanics and classification of fluid flows. Velocity and thermal boundary layers. Reynolds and Prandtl dimensionless numbers. External Forced Convection. Pressure drop, frictional resistance, and the effect of surface roughness. Flow over flat plates. External Forced Convection around Spheres and Cylinders. Laminar and turbulent flow. Flow, pressure drop, and heat transfer in internal pipe flow. Internal Forced Convection in Pipes (Laminar and Turbulent Flow). Entrance region, pressure drop, fully developed flow. Nusselt number for rough surfaces and the Moody diagram. Analysis of Heat Exchangers. Types of heat exchangers (counterflow, parallel flow, cross-flow, plate and shell-and-tube, and mention of others). Overall heat transfer coefficient. Log mean temperature difference (LMTD) method. Heat Exchanger Analysis Using the Effectiveness Method. Selection of heat exchangers, weight, and cost estimation. Importance of heat exchanger performance parameters in ground and airborne applications. Connection to thermodynamic cycles. Introduction to the Theory of Thermal Radiation. Blackbody, radiation intensity, radiation power. Radiation properties: emissivity, absorptivity, and reflectivity of surfaces. Heat Transfer by Radiation. View factor (configuration factor) and its relationships (reciprocity, summation, symmetry, superposition). Black and gray surfaces. Radiation shielding techniques. Introduction to Numerical Methods for Solving Heat Transfer Problems. Boundary and initial conditions for solving momentum and energy transport equations.

Purpose of the course

This course introduces the fundamental principles of heat transfer with applications in industrial processes and thermal system design and presents the analysis and optimization of energy usage in manufacturing and operational environments.

C5Y: Mechanics I (Statics) (Theory:2, Exercises:2, Labs:0 ECTS:6)

Instructor: Assistant Professor Argyrios Anagnostopoulos
webpage: *https://pme.duth.gr/proptixiaka/courses/g5y/*
eClass:

Course Description

Power and torque. Synthesis and analysis of forces and moments. Free body diagram. Types of support. Equilibrium conditions. Isostatic carriers, hyperstatic carriers, mechanisms. Internal forces on beams. Simple carriers: rods, beams. Complex carriers: trusses, frames. Diagrams M, N, Q. Center of mass. Moments of inertia.

Purpose of the course

The objective of the course is to understand and apply the principles of equilibrium and force analysis in simple and complex structures, aiming at the safe and efficient design of mechanical constructions and engineering works.

Z06: Marketing (Theory:3, Exercises:1, Labs:0 ECTS:5)

Instructor: Professor Thomas Fotiadis
webpage: *https://pme.duth.gr/proptixiaka/courses/z06/*
eClass: *https://eclass.duth.gr/courses/TME252/*

Course Description

The course examines the basic principles that govern contemporary thinking and practice in marketing, as expressed in understanding, creating, communicating, and delivering superior value and satisfaction to the clients of an organization. In particular, the course aims at: (a) understanding of marketing and the marketing process, which explores the role of marketing in a changing world, the relationship of marketing with strategic planning, and the marketing environment, (b) development of marketing opportunities and strategies, where the marketing information system, consumer and business purchasing behavior, and the targeted marketing process are examined, and (c) development of the marketing mix, which analyzes the strategies available to the organization, in terms of product, pricing, distribution channels, and promotion. The course presents the principles, methodologies, and procedures of Market Research in the context of the modern business environment. In addition, the correlation and systemic approach of the subject matter with the individual areas of the marketing background is sought. The following topics are analyzed: Purpose, importance, and role of Marketing Research, the structure of the Marketing Research process and design, ethical issues related to research, marketing information systems, sources of information and marketing data, the stages of the research process and data collection methods, data analysis, research techniques, and applications.

+ One optional compulsory course (ECTS:3)

2nd Year - 4th Semester of Studies

D1Y: Differential Equations (Theory:3, Exercises:1, Labs:0, ECTS:5)

Instructor: Professor Emeritus Vasilios Papadopoulos
webpage: *https://pme.duth.gr/proptixiaka/courses/d1y/*
eClass: *https://eclass.duth.gr/courses/ENG166/*

Course Description

Introduction to differential equations. Ordinary first-order differential equations, Differential equations of an order greater than the first, Linear differential equations with constant coefficients, Systems of differential equations. Laplace transformation. Financial applications.

Purpose of the course

Introduction of students to the basic categories of differential equations and familiarization with the available solution methods for their use in financial applications.

D2AY: Electrical Circuits (Theory:3, Exercises:1, Labs:1, ECTS:6)

Instructor: Assistant Professor Theoklitos Karakatsanis, Dr. Athanasios Psomoulis
webpage: *https://pme.duth.gr/proptixiaka/courses/d2ay/*
eClass: *https://eclass.duth.gr/courses/TME129/*
eClass: *https://eclass.duth.gr/courses/TME265/* (lab)

Course Description

Electric field, Electrical polarization and dielectric materials, Magnetic field, Magnetization and magnetic materials, Electrical quantities and units, Measuring instruments and measurements, Electrical circuit components, Electrical circuit analysis, Ohm's law, Kirchhoff's laws, Thevenin's and Norton's theorems, Permanent sinusoidal state of electrical networks, Alternating current and voltage, Power in AC circuits, Three-phase networks, Capacitance, Inductance, Circuit analysis R-L-C, Tuning, filters.

Purpose of the course

Introduction of students to the concepts of direct alternating current, single-phase three-phase network, power factor, resonance, and familiarization with circuit analysis in the permanent state, dynamic behavior of capacitors and coils.

D9Y: Mechanics II (Strength of Materials) (Theory:3, Exercises:2, Labs:0, ECTS:5)

Instructor: Assistant Professor Argyrios Anagnostopoulos
webpage: *https://pme.duth.gr/proptixiaka/courses/d9y/*
eClass: *https://eclass.duth.gr/courses/419357/*

Course Description

General principles of elasticity theory. Structural elements, stresses, and types of supports. Tensions and intensive situations. Simple, flat, and three-dimensional intensive state. Mohr's cycles. Deformation analysis, displacements, right and shear deformations, and compromise conditions. Relationships between stresses and distortions. Tensile and compressive. Hooke's generalized law. Bending beams. Determination of right and shear stresses, displacements, and elastic line. Simple and oblique bending. Statistically indefinite bending problems. Torsion stress. Theory of St. Venant. Warp function, tension function. Special torsion problems, thin-thickened open and closed cross-sections. Shear Center, Energy Methods, Buckling.

Purpose of the course

The objective of the course is to develop the ability to understand and analyze mechanical stresses and deformations in structures and components, contributing to the selection of appropriate materials, the optimization of constructions, and the assurance of their reliability.

D4Y: Information Systems (Theory:3, Exercises:1, Labs:0 ECTS:5)

Instructor: Professor Prodromos Chatzoglou[1]
webpage: *https://pme.duth.gr/proptixiaka/courses/d4y/*
eClass:

Course Description

Initially, basic concepts are developed and elements from information theory and decision-making are studied, such as the organizational and administrative foundations of IS systems, their role, as well as the organizational and administrative changes they

[1] on educational leave for the current academic year

bring to the business, and are the driving force for the emerging digital business. Then, a detailed view is made of the components of a management IS (hardware, software, databases, telecommunications networks) that constitute the IT infrastructure of the organization, as well as the role of Internet technology in creating an infrastructure for digital integration. The role of IS in strengthening business processes and administrative decision-making across the enterprise is then described. Decision support systems and management support systems that enhance business performance by helping executives make better decisions are also described. Finally, it is mentioned how businesses can use information systems to redesign their organizational and administrative processes and how successful IS depends on understanding the business value of systems and managing the changes associated with them. In conclusion, the need to ensure the existence of the appropriate set of technologies, policies, and procedures for the quality, security, and control of information systems is examined

Purpose of the course

This course embraces the principle that knowledge of information systems is essential for creating competitive businesses, managing global companies, adding business value, and offering useful products and services to consumers. Therefore, it emphasizes non-technical issues of information systems, and mainly issues related to the effective adoption and use of information systems and the appropriate preparation of organizations for the acceptance of these systems.

D7Y: Production Systems (Theory:2, Exercises:1, Labs:2, ECTS:6)

Instructor: Assistant Professor Alexandros Xanthopoulos
webpage: *https://pme.duth.gr/proptixiaka/courses/d7y/*
eClass: *https://eclass.duth.gr/courses/TME255/*

Course Description

The course is a background in the science of Production Engineering and Management and includes subjects relevant to the tactical level of production systems management: a/ Basic categories of production systems (make-to-stock, make-to-order, assemble-to-order), b/ Master production scheduling (stages of basic planning, methods of drawing up production plans, buffer, discrete method of calculating inventory to be reserved, etc.), c/ Material requirements planning (bill of materials, MRP algorithm structure, calculation of net requirements, calculation of batch size, calculation of production start times, calculation of next level gross requirements, advanced topics), d/ Job scheduling on a machine (performance measures, priority rules, analytical results, minimization of sum of completion / waiting / deviation times, maximum deviation time and slower completion, etc.), e/ Scheduling of jobs on parallel machines (minimization of maximum completion time, upper bounds, asymptotically optimal solutions, minimization of average completion time, relationship between problem of one machine and parallel machines, simultaneous

reduction of maximum and average completion time, etc.), f/ Scheduling of jobs on machines in series (problem definition, minimization of maximum completion time in two-machine systems, algorithm Johnson, special application case Johnson algorithm (three machines in a row), maximum completion time minimization (general solution), branch & bound method, etc.)

Purpose of the course

Upon successful completion of the course the student will be able to: a/ Understand the broad categories of production systems and their respective characteristics and problems of planning/control, b/ Design master production scheduling programs and evaluate the relevant capacity requirements, c/ Design material requirements plans (MRP) for finished and intermediate products, raw materials, etc., d/ Understand the basic principles of scheduling work in single-machine, parallel and in-line systems

+ One optional compulsory course (ECTS:3)

3rd Year - 5th Semester of Studies

E8Y: Mechanics III (Dynamics) (Theory:2, Exercises:1, Labs:2, ECTS:6)

Instructors: Gabriel Chaitidis
webpage: *https://pme.duth.gr/proptixiaka/courses/e8y/*
eClass: *https://pme.duth.gr/proptixiaka/courses/e8y/*

Course Description

Kinematics of a material point: position vector, velocity, and acceleration (expression of components in Cartesian, cylindrical, and orbital reference frames), relative transport motion. Kinetics of material points: Newton's and Euler's laws, principles of impulse and momentum, principles of work and energy, applications (central shock, central forces - spacemechanics, changing systems of material points). Kinematics of a solid body: convective motion, rotation around a fixed axis, planar motion (pole of rotation), rotation around a fixed point (angular velocity and angular acceleration), general spatial motion of a solid, Euler angles, relative motion of material bodies. Kinetics of solid bodies: inertia tensor of a solid body, Euler's equations, principles of thrust and momentum, principles of work and energy.

Purpose of the course

The aim of the course is the analysis of motion in the field of mechanical constructions.

E3Y: Fluid mechanics (Theory:3, Exercises:1, Labs:0 ECTS:6)

Instructor: Professor Georgios Gaidajis
webpage: *https://pme.duth.gr/proptixiaka/courses/e3y/*
eClass: *https://eclass.duth.gr/courses/TME163/*

Course Description

Introductory concepts, fluid statics (pressure, pressure measurement, fluids in equilibrium, fluids in acceleration, fluid rotation, buoyancy), kinematics and fluid dynamics (flow field, mass and volume flow rates, types of flow, principles of conservation of mass, momentum, macroscopic energy equation, Bernoulli, Euler's equations).Flow of incompressible fluids in closed pipelines (laminar, turbulent flow, primary and secondary energy losses, energy line and hydraulic line, siphoning and conductor combinations). Flow in open pipelines (channel geometry, Chezy equation, Manning, excellent hydraulic cross-section, flow energy, hydraulic jump).

Measurements in fluid mechanics (speed, pressure, flow, viscosity gauges). Non-Newtonian fluids (characteristics and categories of non-Newtonian fluids).

Purpose of the course

Introduction of students to the concepts of fluid flow, viscosity, pressure, buoyancy, energy losses during flow and its application, non-Newtonian fluids and their characteristic properties (thixotropy, plasticity, etc.) and familiarization with: measurements (direct and indirect) of fluid properties, flow of incompressible fluids in closed pipelines with branches, and/or combinations of conductors and flow in open pipelines to ensure drainage, construction economics, environmental calculations.

E4Y: Production Technologies (Theory:3, Exercises:1, Labs:2, ECTS:5)

Instructors: Professor Panteleimon Botsaris, Dr. Haido Kyritsi
webpage: *https://pme.duth.gr/proptixiaka/courses/e4yn/*
eClass: *https://eclass.duth.gr/courses/TME148/*

Course Description

The teaching of this course approaches the subjects of a) conventional machining processes (such as casting, forging, cutting, etc.), b) common processed materials and cutting tool materials, c) main concepts of numerical control of machines (NC, CNC) and d) concepts such as green production, Rapid Prototyping, Flexible Production Systems (FMS), Reverse Engineering, Modern Machining Centers, Occupational Safety etc. Also, an introduction to basic concepts of mechanical measurements (roughness, hardness, thickness, etc.), tolerances, and standardizations.

Purpose of the course

The course aims at the acquisition of skills by the candidate Production Engineer in order to perceive, supervise, and guide corresponding processes and/or production systems.

E1E: Electrical Machines (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructors: Assistant Professor Theoklitos Karakatsanis, Dr. Psomoulis Athanasios
webpage: *https://pme.duth.gr/proptixiaka/courses/e1e/*
eClass: *https://eclass.duth.gr/courses/TME133/*

Course Description

Principles of operation of Electric Machines, components, types, and specifications. Permanent working condition. Transformers, specifications, equivalent circuit. Electrical direct current (D.C) machines, types of excitation, generators – motors, equivalent circuit, load characteristics, power flow diagram, performance, voltage, and speed regulation. Electric Alternating Current (A.C.), Rotating magnetic field. Synchronous (generators – motors), equivalent circuit, vector diagram, parallelism of synchronous generators, effect of excitation and charge, synchronous capacitor. Asynchronous motors, three-phase induction motor, concept of slip, equivalent circuit, power flow diagram, torque – speed characteristic, speed adjustment, starting devices. Special types of motors: single-phase, universal, and stepper.

Purpose of the course

Introduction of students to the concepts of excitation, rotating magnetic field, synchronous speed, slipping, and familiarization with equivalent electrical circuits of machines, power flow diagrams, degree of efficiency, output characteristics of generator (voltage-load current) and motor (torque-speed), and structural features of electric machines.

ST10Y: Industrial and Technological Marketing (Theory:3, Exercises:1, Labs:0, ECTS:5)

Instructor: Professor Thomas Fotiadis, Associate Professor Christina Bampatsou
webpage: *https://pme.duth.gr/proptixiaka/courses/st10y/*
eClass: *https://eclass.duth.gr/courses/TME282/*

Course Description

The teaching of this course approaches the subjects of two important areas of application of the modern philosophy of Marketing: the area of High-Tech Products and Enterprises, and the area of Industrial Enterprises.

Regarding the first part (High-Tech Marketing), the conceptual framework that defines (high-tech) products in the light of strategic planning and implementation of marketing tools is examined. Regarding the second part (Industrial Marketing), basic concepts and principles governing industrial ("business to business" or "B2B") Marketing are analyzed, as well as the differences that exist between consumer and industrial markets.

Purpose of the course

The purpose of the course is to familiarize the student with the subject of Industrial and Technological Marketing and to understand its specificity and role in completing their training and developing all their professional skills. In this introductory course, there is an overview of the material that will be taught in the course, the way of communication with the teachers, as well as the structure of the lessons, exercises, and assignments.

+ One optional compulsory course (ECTS:3)

3rd Year - 6th Semester of Studies

ST7Y: Industrial Process Systems (Theory:3, Exercises:1, Labs:0, ECTS:5)

Instructor: Professor Georgios Gaidajis
webpage: *https://pme.duth.gr/proptixiaka/courses/st7y/*
eClass: *https://eclass.duth.gr/courses/TME112/*

Course Description

This course is organized into four modules.
Section 1: Prerequisite knowledge (units, dimensions, moles, density, concentration, temperature, pressure, technical calculations)
Section 2: Mass equilibria (introduction to the concept of balance, open, closed, steady, non-steady state systems, balances without or by chemical reaction, recycling, bypass, industrial applications)
Section 3: Gases, vapours, liquids and solids (ideal gases, one-component and two-phase systems - vapour pressure, gas-liquid two-phase systems, saturation, condensation, evaporation, partial saturation and humidity)
Section 4: Energy equilibria (concepts, units, energy conservation, specific heat, enthalpy, enthalpy changes, energy balances absent or by chemical reaction, heat of dissolution and mixing).

Purpose of the course

Introduction of students to the concepts: density, concentration, temperature, pressure, mass-material equilibria with or without chemical reaction, stoichiometry, combustion, two-phase systems, saturation, condensation, evaporation, partial saturation, humidity, energy equilibria, enthalpy and familiarization: with units, dimensions and conversions, with choice of calculation base and technical calculations, coexistence of phases, with problem-solving strategies for simple and complex mass equilibria and for energy equilibria.

ST2Y: Electronics (Theory:3, Exercises:1, Labs:1, ECTS:6)

Instructors: Professor Antonios Gasteratos, Dr. Athanasios Psomoulis
webpage: *https://pme.duth.gr/proptixiaka/courses/st2y/*
eClass: *https://eclass.duth.gr/courses/TME243/*

Course Description

Analog: Diodes and their circuits. Bipolar transistors and their connections. Field effect transistors and their circuits. Operational amplifiers. Frequency response of operational amplifiers. Linear circuits of operational amplifiers. Nonlinear circuits of operational amplifiers. Voltage stabilizers. Digital: Logic portals. Combinatorial circuits design and analysis.

Course Purpose

Upon successful completion of the course, the student will: • Recognize the basic electronic elements (diode, transistors, etc.), understand their function and characteristics, and be able to analyze various circuits as well as use them in the design of complex circuits for various practical applications. • Understands the function and characteristics of operational amplifiers and will be able to analyze their circuits as well as use them as basic circuit elements in the design of more complex circuits in various practical applications. • Distinguish the basic concepts that characterize electronics circuits (gain, noise, common rhythm, consumption, etc.) • Understand the basic concepts of binary arithmetic/logic.
• Understands the principles of operation of logic gates as well as basic logic circuits and will be able to simplify complex logic circuits. • Recognizes elementary/basic combinatorial circuits, such as decoders, multiplexers, adders, etc., and will be able to use them in the design of more complex digital circuits. • Understands the usefulness of all the above in the design and implementation of mechatronics systems. • Has gained practice Experience in using electronics, both in a simulation environment and on a real laboratory bench. • Can collaborate with fellow students in the laboratory to solve simple practical problems.

H07: Industrial Electrical Installations (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructor: Assistant Professor Theoklitos Karakatsanis
webpage: *https://pme.duth.gr/proptixiaka/courses/h07/*
eClass: *https://eclass.duth.gr/courses/TME124/*

Course Description

The subject of the course is to introduce students to the concepts of integrated installation study and specifications of installation spaces, average power factor, reactive compensation, grounding, phototechnics, substations, and familiarization with calculations for the selection of cable cross-sections, fuses, and circuit breakers in industrial electrical installations.
Alternating single-phase and three-phase currents, Components and spaces of electrical industrial installations, Regulations – specifications and standards, Types of cables, Conductors – insulators, Design specifications, Types of fuses and means of protection, Selection of cable cross-sections, fuse switches, Determination of components of electrical installations and calculations, Lighting

Installations, Drive Installations, Selection of motors, Grounding, Types and ways of grounding protection, operation, safety, Industrial safety, Reactive Compensation and Power Factor Improvement, Transformers and Private Medium Voltage Substations, Examples of calculation of installation studies.

Purpose of the course

At the end of the semester, students should be able to: • Solve calculations of lighting and motion installation, phototechnics, grounding, and reactive compensation. • Recognize electrical monolinear diagrams and basic control circuits. • Apply regulations, standards, and specifications for the selection of basic industrial electrical equipment and means of protection. (cable cross-sections, fuses, switches, thermals, motors, compensation capacitors, transformers).

D4E: Human Resources Management (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructor: Assistant Professor Anastasios Diamantidis
webpage: *https://pme.duth.gr/proptixiaka/courses/d4e/*
eClass: *https://eclass.duth.gr/courses/TME274*

Course Description

The course is a presentation of human resource management (HRM) and the role it plays in the survival, efficiency, and competitiveness of businesses. Human resource management concerns policies, practices, and systems that affect employee behavior, attitudes, and performance. HRM practices include planning and analyzing work, identifying human resource needs (HR planning), attracting potential employees (recruitment), selecting employees (selection), preparing employees on how to perform their duties and prepare for the future (training and advancement), rewarding employees (pay), evaluating their performance (performance management), and creating a positive job environment (internal communication).

Purpose of the course

The objectives of the course are: • To understand the process of developing a company strategy and the role of human resources in supporting strategy. • Understanding HRM practices – planning and analyzing work, identifying human resource needs (HR planning), attracting potential employees (recruitment), selecting employees (selecting), preparing employees on how to perform their duties and prepare for the future (training and development), rewarding employees (pay), evaluating their performance (performance management) and creating a positive work environment (internal communication— to support business strategy. • Understanding the diversity of existing business administration and human resource management practices as they have evolved historically and are maintained in various business environments. • Knowledge of specific working methods associated with these practices

E1AY: Mechanical Design II (Theory:2, Exercises:1, Labs:2, ECTS:6)

Instructors: Professor Panteleimon Botsaris, Dr. Haido Kyritsi
webpage: *https://pme.duth.gr/proptixiaka/courses/e1ay/*
eClass: *https://eclass.duth.gr/courses/TME106/*

Course Description

Introduction of the student to the analysis of typical mechanical structures, the strength of materials, the determination of critical operating and wear positions, the synthesis, design, and study of simple mechanical devices, and generally the introduction of students to the main characteristics of machine elements. The course aims to introduce the candidate Engineer to the design, study, and analysis of common mechanical structures and their individual parts.

Purpose of the course

Upon successful completion of the course, the student will be able to: • Understand how simple mechanical systems work. • Understand the application of the basic principles of Mechanics in the calculation and design of mechanical components and mechanisms. • Recognizes the usual elements that make up mechanical systems and their components. • Selects type, material, and dimensions of the appropriate machine element for common industrial applications.
• Predicts possible mechanism failure conditions. • Interprets malfunction or failure of mechanisms. • Suggests faulty component improvements

+ One optional compulsory course (ECTS: 3)

4th Year - 7th Semester of Studies

Z01: Automatic Control Systems (Theory:2, Exercises:1, Labs:1, ECTS:6)

Instructors: Professor Antonios Gasteratos, Assistant Professor Angelos Amanatiadis
webpage: *https://pme.duth.gr/proptixiaka/courses/z01/*
eClass: *https://eclass.duth.gr/courses/TME101/*

Course Description

Mathematical description and modeling of dynamical systems. Representation of systems in the state space. Calculate responses in the time and frequency domains. Transfer functions and dynamic diagrams. Stability of dynamic systems. Transient system response characteristics. Features of control systems. Basic control devices. The method of the place of roots for the analysis and design of control systems. Frequency response. Design in the frequency range. Applied topics using appropriate software.

Course Purpose

Upon successful completion of the course, the student will: • Recognize the importance of basic concepts of automatic control systems, such as feedback, gain, error, etc. • Describe systems using mathematical models and will decide on their dynamic behavior and their behavior in the permanent state. • Know the characteristic measures of automatic control systems and will be able to compare and choose the right one for a specific task. • Conclude about the behavior and stability of systems designed or studied. • Design controllers and robust systems with applications in industry and everyday life. • Understand the usefulness of all the above in the design and implementation of automatic control systems. • Have gained practical experience in the use of control systems, both in a simulation environment and in the laboratory. • Can collaborate with fellow students in the laboratory to solve simple practical problems.

Z13: Mechatronics (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructors: Professor Antonios Gasteratos, Dr Athanasios Psomoulis
webpage: *https://pme.duth.gr/proptixiaka/courses/z13/*
eClass: *https://eclass.duth.gr/courses/TME235/*

Course Description

Mechatronic design process (Modeling and Simulation, Prototyping, System Development). Mechatronic system elements: Actuators (stepper and DC motors), Sensors (various types, calibration, compensation, physical quantity measurements). Analog signal

preparation. Digital signal preparation. Analog to digital and digital to analog converters. Microprocessors. Implementation and control of mechatronic systems. Applied topics using appropriate software.

Course Purpose

Upon successful completion of the course, the student will: • Understand the basic structure (general architecture and basic subsystems) and operation of mechatronic systems. • Distinguishes the basic principles and phases of development (design, implementation, and control) of a mechatronic system. • Identifies the basic electronic subsystems and techniques related to the power supply, interconnection, and communication between the components of a mechatronic system. • Knows the techniques of receiving and processing signals from sensors, as well as the techniques of signal amplification and digitization. • Understands the operation and characteristics of digital circuits used for storing, timing, and processing signals. • Understand the use of the microcontroller as a basic element of any mechatronic system, identify its basic subsystems and functions (control, processing, communication), and understand the steps and different options for its programming. • Distinguishes sensors according to their basic principles of operation and will understand their specifications, so as to be able to choose the most appropriate one from a number of available sensors depending on the application. • Distinguishes actuators according to their basic operating principles and will understand their specifications, so as to be able to choose the most suitable one from a number of available actuators, depending on each application. • Understands the usefulness of all the above in the development and operation of mechatronics systems. • He has gained practical experience in the use of microcontrollers, sensors, and actuators, both in a virtual simulation environment and on a real laboratory bench. • Can collaborate with fellow students in the laboratory to solve simple practical problems.

H04: Decision Support Systems (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructor: Associate Professor Athanasios Vavatsikos
webpage: *https://pme.duth.gr/proptixiaka/courses/h04/*
eClass: *https://eclass.duth.gr/courses/TME253/*

Course Description

It is common nowadays for organizations to design, develop, and implement information technology-based applications to support their executives in decision-making processes. Decision Support Systems (DSS) are computer systems that combine mathematical models and databases in a single application to support individual and group decision-making processes. DSS differs from traditional management information systems in that they provide support to decision-making processes, providing answers to user questions through the modeling processes of each decision problem. The establishment of a DSS, in addition to hardware and software needs, must incorporate the procedures usually invoked by stakeholders when it comes to making critical decisions, given the nature of the

decision problems. The course presents the main characteristics that should distinguish the design and development phase of a DSS to support decision-making processes. In addition, the elements that govern the decision-making processes and how to integrate them into a DSS in order to enable the approach of rational decisions are presented. Finally, modelling techniques that have been developed in order to enhance the capabilities of DSS in approaching semi-structured decision problems are presented.

Course Purpose

At the end of the semester, students should be able to: • recognize and categorize decision problems, • model decision problems in hierarchical structures and forms of decision trees, • understand the basic decision structures and how they are used by the main currents of thought, • understand the meaning of the criterion and its forms, • use available approaches for the selection, classification and classification of alternative scenarios, • distinguish the amount of information required from the decision-maker by the main approaches developed in the context of multicriteria decision-making, • apply approaches to support sensitivity and stability analyses of results, • Formulate portfolios of alternative scenarios, • implement methods in a spreadsheet environment.

I04: Project and Programme Management (Theory:3, Exercises:1, Labs:1, ECTS:5)

Instructor: Assistant Professor. Georgios Koulinas'
webpage: *https://pme.duth.gr/proptixiaka/courses/th04/*
eClass: *https://eclass.duth.gr/courses/TME299/*

Course Description

Project organization and management. The PMBOK standard. Project planning and control using the method of network analysis (CPM). Project bar chart (GANTT). Uncertainty in duration estimates (PERT), stochastic time analysis, and cost planning. Control of project time and cost (schedule compression), scheduling under constraints – resource allocation, network readjustment. Applications in large projects with the help of appropriate software (OpenProj, Microsoft Project, Primavera).

Course Purpose

The aim of the course is to provide students with the basic knowledge and skills necessary to effectively deal with problems that arise in all phases of a project. The aim of the course is to analyze all important qualitative and quantitative methods used in the design, planning, and control of projects. The course material includes applications in large projects, with the use of appropriate software. Upon successful completion of the course, students are expected to have acquired the knowledge to: • understand and apply the basic principles and techniques of planning, scheduling, and controlling project management, • be able to recognize and solve real project scheduling problems.

Z07: Management of Information Systems (Theory:3, Exercises:1, Labs:0, ECTS:6)

Instructor: Professor Prodromos Chatzoglou[2], Dr. Ioakeimidou Despoina
webpage: *https://pme.duth.gr/proptixiaka/courses/z07/*
eClass: *https://eclass.duth.gr/courses/TME228/*

Course Description

The course is an introductory course in Management of the Information Systems Development process. The course material aims to introduce students to the basic concepts of management information systems, their development process, the life cycle of the development process of information systems, the role of proper planning and monitoring of this process, and the resources used. In addition, methodologies for the analysis and design of information systems are examined, information systems are evaluated, and all kinds of risks that exist and may affect the development process are identified.

Purpose of the course

Upon successful completion of the course, students will be able to: • Identify the human, organizational and technological component of managing the development process of Information Systems, • Analyze the prospects and risks involved in the process of developing Information Systems, as well as the issues arising from their use, • Know what are the basic steps of solving problems that may occur in the context of developing Information Systems, • Understand the influence of the human factor either in the development or supply of information systems due to the communication of people from different departments in the context of their cooperation and the strategic value of the new system.

+ One optional compulsory course (ECTS: 3)

4th Year - 8th Semester of Studies

H01: Robotics (Theory:3, Exercises:1, Labs:1, ECTS:6)

Instructors: Assistant Professor Angelos Amanatiadis, Professor Antonios Gasteratos
webpage: *https://pme.duth.gr/proptixiaka/courses/h01/*
eClass: *https://eclass.duth.gr/courses/TME103/*

[2] on educational leave for the current academic year

Course Description

Kinematic analysis of robots (direct and inverse kinematic problem). Velocity kinematics and static force analysis (differential movements, Jacobean, singularity points, holonomic operators). Dynamics. Trajectory design. Control of robotic operators. Automatic navigation vehicles (AGVs). Simulation of industrial robotic systems using appropriate software.

Course Purpose

Upon successful completion of the course, the student will: • Recognize the basic parts of a robotic arm (joints, ligaments, end point of action, etc.) as well as the basic architectures of a robotic arm, • Know the comparison measures of robotic systems and will be able to choose the appropriate one for a specific task, • Describes and analyzes movement through appropriate models, • Describes kinematic equations for operators and operation with the resulting equations, • Solves simple problems of correct and inverse kinematics, • Solves problems of differential kinematics.
• Solves trajectory design problems, • Understands the usefulness of all the above in the design and implementation of industrial robotic systems, • Has gained practical experience in the use of robotic arms, both in a simulation environment and in the laboratory, • Can collaborate with fellow students in the laboratory to solve simple practical problems.

H03A: Environmental Engineering (Theory:3, Exercises:0, Labs:1, ECTS:5)

Instructor: Professor Georgios Gaidajis
webpage: *https://pme.duth.gr/proptixiaka/courses/h03a/*
eClass: *https://eclass.duth.gr/courses/TME125/*

Course Description

Acquaintance with the problem of air pollution, pollutants, sources, and effects of air pollution. Technologies for the destruction and removal of gaseous and particulate pollutants are modern anti-pollution technologies. Water resources, pollution and management, general characteristics, and wastewater treatment. Solid waste management, collection, recycling, disposal in landfills and description of the characteristics of these sites. Industrial methods of waste management, industrial and hazardous waste. Case studies in industrial or other activities. Report on issues related to environmental policy, legislation and the modern dimension of pollution at both technological (industrial ecology, pollution prevention) and social (sustainable development) levels.

Purpose of the course

The aim of the course is: To understand the environmental dimension of the projects and activities of the Production Engineer and Management. Introduction to the concepts of pollution in general in environmental media (air, water, soil). To understand the

specificity of air pollution, the sources and effects of pollution, the long-term and large-scale effects of air pollution on the planet and modern anti-pollution technologies. Familiarization with technologies for the destruction of air pollutants and technologies for the removal of particulate pollutants. Familiarization with the characterization of hazardous industrial waste, with solid waste management and the institutional framework and with the criteria for selecting landfills. Focus on specific case studies (e.g. acid runoff of mines, pollution of environmental media by specific pollutants, e.g. heavy metals, management of special categories of solid waste, degradation of underground aquifer, etc.). Introduction to the concepts and tools of Industrial Ecology and Circular Economy.

Z11: Technological Economics (Theory:2, Exercises:2, Labs:0, ECTS:5)

Instructor: Associate Professor Athanasios Vavatsikos
webpage: *https://pme.duth.gr/proptixiaka/courses/z11/*
eClass: *https://eclass.duth.gr/courses/TME251/*

Course Description

The undertaking of techno-economic analyses and investment evaluation requires engineers a/ to understand models governing the evaluation procedures followed, the mechanisms that characterize the issues of cash flow equivalence and the mechanisms of time discounting of values, b/ to be able to understand and read the accounting circuit of enterprises, c/ to distinguish the forms of interest rates and interest, d/ understand the basic distinctions and classifications of investments, e/ know and apply correct investment evaluation models, f/ be familiar with models for managing the uncertainty that governs long-term investment decisions.

Purpose of the course

At the end of the course, students are able to: Understand the basic principles governing the determination of cash flows and approach the formation of capital investment. Understand the various forms of interest (simple interest and compound interest). Calculate the present and future value of payments or convert them into a fixed payment level program (rands). Distinguish between forms of interest rates (nominal, real) and get acquainted with the concept of inflation and its effect on investment evaluation. Calculate the investment opportunity cost implemented by different funding sources and financing schemes. Use empirical and financial investment evaluation models, knowing the advantages and disadvantages of the models. Use models to form an investment portfolio. Develop models for managing uncertainty in investment evaluation. Use spreadsheets to implement assessments.

H15: Motion Transmission Systems (Theory:2, Exercises:2, Labs:1, ECTS:6)

Instructors: Professor Panteleimon Botsaris, Dr Haido Kyritsi

webpage: *https://pme.duth.gr/proptixiaka/courses/h15n/*
eClass: *https://eclass.duth.gr/courses/419320/*

Course Description

The course introduces students to the analysis of popular drive systems such as belts (flat and trapezoidal), gears (straight and endless screw-crown), and chains. During the semester, the student will become familiar with the design and analysis of specific elements, acquiring knowledge about their dynamics, durability, construction, and maintenance processes.

Purpose of the course

The course aims to introduce the candidate Engineer to the design, study, and analysis of common drive systems found in an industrial facility, as well as their individual departments, and to acquire skills that will help him understand other scientific areas of the specialty of Production Engineer, such as Robotics, Automatic Control Systems, etc.

H14E: Computational Intelligence & Machine Learning (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructors: Assistant Professor Angelos Amanatiadis
webpage: *https://pme.duth.gr/proptixiaka/courses/h14n/*
eClass: *https://eclass.duth.gr/courses/TME241/*

Course Description

The course attempts an introduction to the principles and methodologies of Computational Intelligence and Machine Learning technologies (fuzzy systems, neural networks, deep learning, and evolutionary algorithms) as well as the understanding and familiarity with the tools for developing relevant applications.

Purpose of the course

Learning objectives: Understanding and distinguishing basic concepts, disciplines, methods, functions, and applications of natural/artificial and computational intelligence and Machine Learning. Recognizes the nature and content of problems and the coping approaches provided by UV and Machine Learning. To get in touch and get to know the operation and applications of neural networks. To get in touch and get to know the operation and applications of evolutionary algorithms. To get in touch and get to know the operation and applications of fuzzy logic and fuzzy systems. Search, study, and compose articles from the international scientific literature on a scientific/technical problem. To properly manage bibliographic references. Analyze the problem and synthesize the solution. Use (program) specialized software for the development of relevant applications. Prepare technical reports and present their work.

+ One optional compulsory course (ECTS: 3)

5th Year - 9th Semester of Studies

H10: Fluid Dynamics Machines (T:2, A:1, E:1, ECTS:5)

Instructor: Associate Professor Zinon Vlahostergios
webpage: *https://pme.duth.gr/proptixiaka/courses/h10/*
eClass: *https://eclass.duth.gr/courses/TME270/*

Course Description

Examples of fluid machinery and their importance across various engineering applications. Review of fundamental fluid mechanics concepts and fluid flow in fluid machines. Types of flows, fluid kinematics, Bernoulli and Euler equations, conservation of mass and momentum, and an introduction to turbulent flow. Flow networks and incompressible fluid flow in ducts. Energy equation and energy line, major and minor head losses, the Moody diagram, pipe combinations, and the integration of fluid machines into flow networks. Introduction to differential equations of momentum and energy – Navier-Stokes equations for turbomachinery. Fundamentals of Computational Fluid Dynamics (CFD) and its use in analyzing flow fields within fluid machinery/turbomachinery. Introduction to airfoil theory and typical airfoil configurations. General characteristics, angle of attack, velocity distribution over airfoils, determination of lift, drag, and pressure distribution coefficients. Vortex shedding in the wake of blades and airfoils. Main components and basic operating principles of hydraulic turbines.Impulse and reaction turbines (Pelton, Francis, Kaplan), axial and mixed flow turbines, and characteristic performance diagrams. Axial and mixed (radial) flow pumps. Main components, operating principles, energy loss, and efficiency. Characteristic pump performance curves. Definition and construction of velocity triangles in fluid machines. Relative and absolute velocity, operational efficiency, and energy loss calculations. Pump system characteristics. Parallel and series pump arrangements, characteristic curves, and water hammer effects. Cavitation in fluid machines. Required and available Net Positive Suction Head (NPSH), selection process of fluid machines, similarity laws, and specific speed. Thermodynamics of cycles involving fluid machinery (e.g., gas turbines, jet engines), temperature-entropy diagrams and their significance, pressure ratios, and determination of optimal efficiency. Flow field computation around airfoils and turbomachinery blades using Computational Fluid Dynamics. Correlation of pressure and velocity distributions with machine performance and rotor work output. Blade design optimization in fluid machines based on flow field analysis.

Purpose of the course

The course aims to provide students with a solid foundation in the principles and operation of fluid machinery, emphasizing their role in energy conversion and industrial systems. Students will gain the analytical and computational tools necessary to evaluate

performance, integrate machines into flow networks, and support the efficient design and management of fluid-based systems in production and infrastructure applications.

H13: Supply Chain Management (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructor: Assistant Professor Alexandros Xanthopoulos
webpage: *https://pme.duth.gr/proptixiaka/courses/h13/*
eClass: *https://eclass.duth.gr/courses/TME291/*

Course Description

The course presents the following topics: • Supply chain structure and decision making – stages of SC, surplus of SC/consumer, planning/planning/operation of SC, procedures in SC, • Supply chain performance metrics – financial indicators, operational/operational indicators, indicators related to customer service, • Supply chain strategy – business strategy and SC strategy, low-cost/continuous supply chain flow/fast/flexible/mass customization, • Supply network design – the role of distribution in SC, factors taken into account in supply network design, basic distribution network topologies, benchmarking, • Distribution network optimization models – mathematical modelling, transmission problems, transhipment problems, generalised distribution network design problems, • Transport in the supply chain – the role of transport in SC, stakeholders, The main means of transport, the situation in Greece.

Purpose of the course

By the end of the semester, students should have understood: • What is Supply Chain Management, what is its importance in terms of a company's performance, and what is its role in the modern business environment. • What are the subjects that make up the core of the Supply Chain, and what are the main problems encountered in this field? • Important methodologies and tools for solving problems related to Supply Chain Management. • A series of case studies, which lead to the acquisition of critical thinking in this subject.

I07: Technological Innovation and Entrepreneurship (Theory:2, Exercises:1, Labs:1, ECTS:5)

Instructor: Professor Thomas Fotiadis, Associate Professor Christina Bampatsou
webpage: *https://pme.duth.gr/proptixiaka/courses/th07/*
eClass: *https://eclass.duth.gr/courses/TME240/*

Course Description

Introduction and analysis of the concepts of entrepreneurship, technology, and innovation. Economy, competitiveness, and innovation. Types, content, nature, processes, origin, and typology of innovation and entrepreneurship. Analysis of examples. Dimensions and axes of innovation. Indicators and systems for measuring and evaluating innovation. Technological entrepreneurship, identification of business opportunities, and preparation of business plans and economic and technical studies. Copyright and Industrial Property. Innovation and knowledge management, organizational learning, and continuous innovation - creativity. Technological forecasting and diffusion models of new technologies, innovations, and products. The Greek innovation system and the international situation and experience. Case studies.

Purpose of the course

At the end of the course, students will be able to: 1/ understand and distinguish the content and basic concepts, principles, functions and processes of entrepreneurship, technology, research and development (R&D), science and innovation, 2/ know the mechanisms, aspects and phenomena of emergence and development of creativity, knowledge, discovery and invention and how these are led through innovation to entrepreneurship and the economic/social system, 3/ know and distinguish the types of innovation based on its various classification criteria (nature, source, process, etc.), 4/ understand the operation of the R&D system, as well as familiarity with patent procedures and the wider industrial – intellectual property system, 5/ understand the operation of businesses in internationalized markets and the impact of innovation on it, through product and service design, advanced production and logistics systems, marketing, technological leverage, added value and customer satisfaction, 6/ Familiarization with the basic mechanisms and factors of technological forecasting, models of diffusion and acceptance of new technologies and products – capacity building implementation of dispersion models and transfer of know-how and innovations, know the ways and procedures for evaluating innovation – innovative systems either at product/service, business and/or sector level, 7/be able to participate in the development of new business ventures as well as in the elaboration of economic-technical studies and business plans.

Z14Y: Mental Ergonomics & Interactive Design (Theory:3, Exercises:1, Labs:0, ECTS:4)

Instructor: Dr. Pistofidis Petros
webpage: *https://pme.duth.gr/proptixiaka/courses/z14y/*
eClass: *https://eclass.duth.gr/courses/TME289/*

Course Description

Basic functions and characteristics of human cognition, Basic principles of human-computer interactive systems, Basic concepts of interactive systems development, Feedback cycles, Direct manipulation and invisible interfaces, Human abilities, Design principles

and heuristics, Introduction to task analysis, Research and search, Introduction to mental models and representations, Design of interactive systems, Evaluation of interactive systems.

Purpose of the course

Upon successful completion of the course, students will be able to: • Know the basic functions and characteristics of human cognition, • Know the basic design principles and methods of designing, developing, and evaluating interactive products and human-computer systems, • Apply user-centered research methods. • Apply methods of design and prototyping of interactive systems, • Apply methods of empirical evaluation of interactive systems.

H12: Inventory Theory (Theory:3, Exercises:1, Labs:0, ECTS:5)

Instructor: Assistant Professor Alexandros Xanthopoulos
webpage: *https://pme.duth.gr/proptixiaka/courses/h12/*
eClass: *https://eclass.duth.gr/courses/TME295/*

Course Description

The course concerns the teaching and practical application of operations management methods in production and supply chain based on lean philosophy. Lean management is about eliminating activities that do not add value on the one hand and focusing on activities that add value to the customer on the other. The reduction of production costs, the drastic increase of useful productivity, and the improvement of quality in the enterprise are the side effects of the application of methods aimed at reorganizing the use of business resources in order to create the lean enterprise.

Purpose of the course

Upon successful completion of the course, the student will be able to: • Understand the role and importance of Inventory Control as well as the subjects/problems that make up its core, • Understand important solving methodologies and scientific questions in the field of Inventory Control.

+ Two optional compulsory courses (ECTS: 6)

5th Year - 10th Semester of Studies

Diploma Thesis: 30 hours/week (ECTS~30)

The diploma thesis is a scientific-technical thesis prepared by the candidate engineer during the last semester of his/her studies, in order to complete it and obtain his/her diploma. The dissertation is a different learning path from the one with which the student became familiar in the previous semesters, through the courses. It aims to help him systematize and fully apply the knowledge of the field of Production Engineering and Management, and, in addition, to deepen his knowledge in a specific subject. At the same time, the diploma thesis is the first extensive technical and scientific work that the future Production and Management engineer is required to prepare according to a scientific methodology.

Optional Compulsory Courses for Winter Semesters

Elective courses of the Department of Production and Management Engineering

EP8: Algorithmic Optimization Methods (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Assistant Professor Georgios Koulinas
webpage: *https://pme.duth.gr/proptixiaka/courses/ep8/*
eClass: *https://eclass.duth.gr/courses/TME286/*

Course Description

Computational complexity, optimization methods. Modeling of Key Problems and Description of Limitations. Constructive Heuristics, Iterative Enhancement Algorithms, Simulated Annealing Algorithms, Genetic Algorithms, Greedy Randomized Adaptive Search Procedures (GRASP), Tabu Search Algorithm, Threshold Accepting Algorithms, Ant Colony Algorithm. Special Topics in the Design and Development of Algorithmic Optimization Methods. Hyperheuristic Algorithms, Applications to real problems.

Purpose of the course

The aim of the course is to highlight the usefulness of heuristic and metaheuristic methods to address real problems faced by businesses and organizations, having to meet the challenge of finding high quality solutions in a short time.
The aim of the course is for the student to acquire the skills to: • be able to develop heuristic and metaheuristic algorithms for problem solving, • be able to analyze how each metaheuristic methodology works, • to distinguish the cases of problems in which metaheuristic methodologies can be applied, • to apply heuristic and metaheuristic algorithms for Real-time Decision Making. In the context of the course, algorithms are applied to a wide range of problems that cover almost the entire activity of a modern company, such as, e.g., project scheduling, fleet routing, facility location, optimization in human resource management, portfolio selection, optimization in transportation, optimization in Marketing and Sales problems, optimization in plant layout, and storage.

Z02: Data Analysis (Theory:2, Exercises:1, Labs:0, ECTS:3)

The course is not offered in the current academic year

Instructor: Professor Prodromos Chatzoglou[3]
webpage: *https://pme.duth.gr/proptixiaka/courses/z02/*
eClass: *https://eclass.duth.gr/courses/TME179/*

Course Description

Basic concepts. Regression. Breakdown into main components. Match analysis. Factorial analysis. Discrete analysis. Time series analysis. Forecast. Forecasting techniques. Systems of structural equations. Applications.

Purpose of the course

In summary, the student will acquire skills in: • Understanding of data analysis processes, • Knowledge of different data analysis tools and techniques, • Understanding of different models of statistical data analysis, • Knowledge of current research in the field of data analysis, • Ability to apply various algorithms to solve data analysis problems in various fields, • Familiarity with successful examples of data analysis application in real life problems, • Search, analysis and synthesis of data and information, using the necessary technologies.

EP13: Big Data Analytics (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Assistant Professor Angelos Amanatiadis
webpage: *https://pme.duth.gr/proptixiaka/courses/ep13/*
eClass: *https://eclass.duth.gr/courses/TME314/*

Course Description

The aim of the course is to provide a broad and practical introduction to programming for processing and analyzing big data with search, mining, and visualization techniques while using relational databases, SQL, and specialized libraries. It provides an insight into the latest tools and techniques for solving modern real-world problems (e.g., IoT, Social Nets Computing) related to the analysis of large-scale data for the construction of applications, predictive models, and decision-making.

Purpose of the course

The purpose of the course is for the student to acquire the skills to: • Acquire theoretical and practical knowledge of methods and technologies for the representation, mining, storage, and processing of heterogeneous types of data in modern algorithmic and programming environments, • To acquire advanced knowledge and skills in the basic structures, elements, and programming idioms of the Python programming language. In the context of the course, skills and programming techniques are applied to a wide range

[3] on educational leave for the current academic year

of problems and datasets, which cover almost all contemporary challenges encountered in modern production, economy, and business, in which decisions are based on large-scale mining of unstructured data, analysis, and processing.

C2Y: Object Oriented Programming C++ (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Professor Stefanos Katsavounis
webpage: *https://pme.duth.gr/proptixiaka/courses/q2y/*
eClass: *https://eclass.duth.gr/courses/TME288/*

Course Description

Introduction to object-oriented programming, advantages, and properties of the object-oriented approach. Historical development of the C++ language. C++ libraries. The application development environment is through C++ with open source software.
Abstract data types. C++ data types, operators and expressions, object-oriented program structure, input-output instructions and specifications, selection and iteration commands. Functions, indicators, parameter range, recursiveness, and function overload. The five stages of object design. Guidelines for designing objects. Introduction to classes. Software engineering components. Classes and objects – data abstraction and encapsulation, object-oriented design. Constructors and destructors functions. Copy Constructors. Return objects from functions. Header files: Functional source code analysis. Compile and link. Properties. Usage of header files. Applications from engineering science. Program address space. The assert command. Dynamic memory usage in C++. Indicator this. Static class members. Applications. Inheritance. Features of inheritance in object-oriented programming. Constructor functions in inheritance. Redefine functions. I/O flows, operators, and flow management functions. File processing: serial files, direct access files. Files with objects. Standard classes and standard functions. Create and use App templates. The C++ STL library. Containers: vectors, lists & iterators. Applications.

Purpose of the course

Upon successful completion of the course, the student will be able to: • Understand the reasons that require object-oriented analysis and design as an effective tool in solving problems of engineering science. • Identifies class components when modeling problems in terms of the object-oriented approach. • Applies the principles of concealment and encapsulation when developing programs. • Uses appropriate constructor formats to initialize objects. • Uses the capabilities of inheritance to reduce program development time. • Uses the interface of the class with the compilation to improve efficiency during application development. • Solves problems with large amounts of data using serial & direct access files • Uses dynamic data tables to manage data on engineering science problems. • Effectively manages data validity issues using function overload and exceptions. • Creates generalized solutions with data using standard functions and classes. • Recognizes the ability to use the data structures and related functions of the STL library (containers: vectors, lists & iterators).

E5Y: Databases (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Associate Professor Athanasios Vavatsikos
webpage: *https://pme.duth.gr/proptixiaka/courses/e5y/*
eClass: *https://eclass.duth.gr/courses/TME277/*

Course Description

The subject of the course is the introduction to the fundamental concepts necessary for the design, use, and implementation of database systems. The conceptual modeling techniques used in base systems with emphasis on the Entity-Relationship (ER) model are presented. Extensive reference is made to relational data model and relational databases (RDBS). Practical rules to avoid data entry, deletion, and modification anomalies, functional dependency issues, regular forms, and multivalued dependencies are analyzed. With the use of a General Purpose Relational Database Management System and the development of an educational paradigm, the most important subjects of a DBS are presented, such as: a/ Tables, b/ Questions, c/ Forms, and D/ Reports. Finally, SQL is introduced as a data handling language. The understanding of the issues is completed through the realization and study of relevant applications.

Purpose of the Course

Upon completion of the courses, students will have acquired the basic knowledge and skills necessary for the design and implementation of a DB. In particular, they will have acquired the skills to: • Understand the usefulness and advantages deriving from the use of Database Management Systems (DBMS) in businesses and organizations, • Organize and manage data in an effective way, • Distinguish and recognize the elements that are critical for the design of database systems and understand the processes that govern the design of a DB, • Support the conceptual design of a database and in particular read and compile a Correlation Entity Diagram, • Understand and support the processes of transition from correlation entity models to relational ones, • Can implement a relational model using a general purpose DBMS.
• can use the data recovery tools of the DBMS, • Write queries for data recovery, modification, and deletion, • Design the user interface, • Support the export of information in the form of reports.

I10: Industrial Electronics and Automation (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Assistant Professor Theoklitos Karakatsanis
webpage: *https://pme.duth.gr/proptixiaka/courses/th10/*
eClass: *https://eclass.duth.gr/courses/TME134/*

Course Description

The subject of the course is to introduce students to the concepts of static frequency conversion, pulse amplitude modulation (PWM), and familiarization with power electronics, frequency converters, smooth starters, motor drives, and inverters. Industrial safety, Understanding of electrical diagrams, Industrial control devices (Main and Pilot), Measurement and control sensors, Power electronics (diodes, thyristors, SCR, GTO, DIAC, TRIAC, transistors, BJT, FET, MOSFET, IGBT), Phase angle control, Power control, Static frequency conversion, rectifier circuits and pulse circuits, Inverters, Pulse amplitude modulation (PWM), Electrical Drive Systems, Relays, Automatic motor switches and starters, Industrial motors and generators, Motor control circuits, Governors, Control modes and types, Process control systems, Automation circuit applications in Industries, Programmable Logic Controllers (PLCs), Machines and processes with control.

Purpose of the course

At the end of the semester, students should be able to: • Know the operating principles, structure, and technical characteristics of basic industrial control devices. • Recognize the advantages and disadvantages of industrial electronic equipment in specific applications. • Choose the appropriate equipment for industrial uses. • Read and program PLCs in Ladder programming language.

I08: Intelligent Industrial Production Systems (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Dr. Balafoutis Athanasios
webpage: *https://pme.duth.gr/proptixiaka/courses/th08/*
eClass: *https://eclass.duth.gr/courses/TME239/*

Course Description

Basic concepts, principles, and applications of intelligent systems. Intelligent Techniques and Systems: adaptive and hybrid systems with fuzzy, neural, expert-rule-based systems, fuzzy graphs, etc. Training - adaptation algorithms. Applications in control, supervision, modeling, forecasting, system diagnosis, decision making, optimization, etc.

Purpose of the course

The purpose of the course is to cultivate in students the necessary knowledge background, thinking, perception, and skills for the design and development of integrated computational intelligent systems oriented to technological and scientific applications of industrial production, management, decision systems, robotics, artificial vision, quality control, etc. More specifically, the learning objectives concern: Contact and knowledge of the operation and applications of intelligent and expert systems, adaptive systems, and hybrid UV and AI systems. Search, study, and compose articles from the international scientific literature on a scientific/technical

problem. To properly manage bibliographic references. Analyze the problem and synthesize the solution. Use (program) specialized software for the development of relevant applications. Prepare technical reports and present their work.

C4E: Graph Theory (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructor: Professor Stefanos Katsavounis
webpage: *https://pme.duth.gr/proptixiaka/courses/g4e/*
eClass:

Course Description

History and basic definitions. Basic Graphs. Graphic sequence. Representation, operations, transformations, and graph relations. Permeability of edges or vertices, Euler's theorem, graphs with Hamilton paths. Consistency of edges or vertices, Menger's theorem. Trees, characterization, and properties. Flatness, Euler's formula for planar graphs and solid polyhedra. Kuratowski's theorem, introduction to the theory of minor graphs. Graph coloring, bounds for the color number, the five-color theorem, and the four-color theorem.

Purpose of the Course

The successful completion of the course Graph Theory provides students with the opportunity to develop their skills in order to be able to: 1/ Know and understand the problem formulation processes of the science of Production Engineering and Management that are directly related to the applications of Graph theory, concerning problems of production line planning in industry. 2/ Know and understand the basic processes of formatting graphs, graphs, and their isomorphisms. 3/ They combine basic concepts of Linear Algebra and Matrix Theory, with the methods of Graph Representation (adjacency matrix, incidence matrix, edge lists). 4/ They apply basic Operations with Graphs (union – intersection – sum of ring – combination – complement – exchange of edges – sum of graphs) and apply their properties. 5/ Know special categories of Graphs (Complete, Supplementary, Signary, Bilateral, Multilateral). 6/ Apply appropriate algorithms for determining optimal routes (paths – circles). 7/ Combine and apply the theory of Discrete Mathematics to the meleti of special Graphs (Trees-Definitions, theorems, properties, examples- Ordered Trees, Binary Trees, Tree Crossing, Overlapping Trees. Representation of discrete structures in the real world with tree structures and examples of tree structures. 8/ They apply the Flatness and Coloring of Graphs (Coloring Algorithm). 9/ Apply Graphs and Graphs in Industrial Production (production process – sequence of tasks – minimization of total machine operation time, etc.). The successful completion of the course Graph Theory provides the student with the opportunity: 1/ to organize and use the knowledge acquired in solving specific problems of Production and Management, 2/ to understand and summarize scientific work in the respective applied mathematical fields.

I03: Integrated Industrial Informatics Systems (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Assistant Professor Alexandros Xanthopoulos
webpage: *https://pme.duth.gr/proptixiaka/courses/th03/*
eClass: *https://eclass.duth.gr/courses/TME290/*

Course Description

Supervision and control of physical processes, Tactical level of production management, Design of production systems, State-of-the-art technologies, Practical application – development of a three-dimensional model of an industrial unit in specialized software, modeling of electrical consumption, modeling of production equipment failures, modeling of workers and repair work, Practical application – development of supply network optimization application in specialized software, mathematical problem modeling, application implementation and simple graphical user interface (GUI).

Purpose of the course

Upon successful completion of the course the student will be able to: • Understand the broad categories of computer applications in industry and their respective uses, • Construct models of industrial units and supply chains using specialized software packages, • Uses the models developed to conduct experiments in order to study the properties of the examined systems, • Optimizes the operating parameters of the examined systems

EP6: Organizational Behavior (Theory:3, Exercises:0, Labs:0, ECTS:3)

Instructor: Assistant Professor Anastasios Diamantidis
webpage: *https://pme.duth.gr/proptixiaka/courses/ep6/*
eClass: *https://eclass.duth.gr/courses/TME280/*

Course Description

Highlighting the importance of the human factor for the effective functioning of an organization. Scientific approach to interpreting the behavior of individuals and groups within the organization. Addressing and handling behavioral issues. Improving the quality of work and designing organizational processes, policies and practices.

Purpose of the course

The purpose of the course is to familiarize students with issues such as: • Understanding the human behavior of employees which will ensure the necessary conditions for their satisfaction and support. • Study of human problems and relationships between individuals. • Study of the behavior of the teams working in the organization, as well as the behavior of the organization itself in

order to achieve the expected results. Upon successful completion of the course, students will be able to: • understand the basic concepts and issues arising from modern approaches to organizational behavior, • understand and describe human problems and relationships in a work environment, • explain and discuss the concept and usefulness of employee motivation, • understand and clarify the usefulness of the concept of leadership and the associated behaviors executives, • understand and explain the concept of organizational culture and suggest ways to manage organizational change.

EP12: Elements of Law & Technical Legislation (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructors: Dr. Panagiotis Marhavilas
webpage: *https://pme.duth.gr/proptixiaka/courses/ep12/*
eClass: *https://eclass.duth.gr/courses/TME247/*

Course Description

The course consists of the modules "Elements of Law" and "Technical Legislation". The first section attempts a general view of the law and explains the basic legal concepts and the main legal relationships that are created and included in the branches of Law. More specifically, in this unit are taught a/ Introduction to the science of law: law and the rule of law, constitution-state, basic concepts of the legal system, the way justice functions and is administered b/ Constitutional Law: introduction to constitutional law and c/ Civil Law: introduction to civil law, which includes all the rules regulating the legal relations of persons acting as individuals. The section "Technical Legislation" includes an/ Introduction to public procurement: the concept of public works, procedure for the award of works, design, consultancy firms, designers, design award procedure, legislation for the construction of public works. Works, Community legislation on the construction of public works and b/ Legislative framework for procurement (tenders and supply contracts).

Purpose of the course

The purpose of the course is twofold: a/ To provide students with basic general knowledge related to the concept of law and its rules, b/ To assist graduates of the Department of Production and Management Engineering of the Democritus University of Thrace in attending Postgraduate Programs of Studies in the field of Management, in practicing their profession, and in their communication with the "therapontes" of Themis.

ST4E: Stochastic Processes (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructor: Dr. Panagiotis Marhavilas
webpage: *https://pme.duth.gr/proptixiaka/courses/st4e/*

eClass: *https://eclass.duth.gr/courses/TME157/*

Course Description

The course consists of the following modules: Definition of stochastic processes, Correlation, Statistics, Moments, mean square calculus, Independence, Wiener process, White noise, Poisson process, Systems with stochastic inputs, Ergodicity, Markov chains, Time series analysis, Applications.

Purpose of the course

The aim of the course is: • To introduce the principles governing Stochastic Processes or Random Processes, • The development of methods that can be applied to the study of systems involving stochastic processes. Consequently, the learning objectives of the course are: (i) To introduce the student to the understanding of concepts and the study of phenomena or systems, which evolve over time, and whose future behavior is not completely defined or predictable, but is characterized by the factor "randomness". (ii) To teach the student the development of methods that can be applied in the study of systems involving M.D. (iii) To assist the student in attending other courses of the Undergraduate Program of Studies of the Department of PME of the Democritus University of Thrace (e.g., Production Systems, Occupational Safety & Health Management). (iv) To assist graduates of the Department of Production and Management Engineering of the Democritus University of Thrace in attending Postgraduate Programs of Study in the fields of Organization and Management of Technical Systems and Enterprises, as well as in practicing their profession. (v) Understanding the analytical tools required to analyze systems involving SPs.
(vi) The development of those analytical thinking skills required for the selection of directions through a variety of options, regarding the study of systems involving SPs.

I11: Strategic Planning (Theory:3, Exercises:0, Labs:0, ECTS:3)

The course is not offered for the current academic year

Instructor: Professor Prodromos Chatzoglou[4]
webpage: *https://pme.duth.gr/proptixiaka/courses/th11/*
eClass: *https://eclass.duth.gr/courses/TME279*

Course Description

Necessity of planning in modern business activity. Concept and definition. Purpose and phases of strategic planning. Identification of objectives and categories of objectives. Diagnosis of the situation, analysis of the enterprise, and diagnosis of the environment of

[4] on educational leave for the current academic year

the enterprise. Forecasting and scenario analysis. Business strategy. Elaboration of strategies, methods of assessment, and selection of strategies. Balanced performance card. Strategic planning applications in businesses and organizations. Elaboration of a business plan.

Purpose of the course

Learning objectives: 1/ To understand the changing nature of strategic management in the modern context of business operation (dynamic, uncertain, and complex environment). 2/ The development of management skills that will help students add value to the organizations they will work for. 3/ Understanding the analytical tools required to assess the degree of success of organizations in relation to the strategic goals they have set. 4/ The development of those analytical thinking skills required to choose strategic directions through a variety of options. 5/ Understand the determinants affecting the range of business activities, both horizontal or geographical expansion in different industries, as well as vertical growth along the value chain of a particular industry. 6/ The investigation of organizational structures and different types of organizational culture in relation to their strategic fit levels. 7/ Critically evaluate the importance of innovation, learning, leadership, and change in the formulation and implementation of strategies.

H06: Financial Management (Theory:3, Exercises:0, Labs:0, ECTS:3)

Instructor: Associate Professor Christina Bampatsou
webpage: *https://pme.duth.gr/proptixiaka/courses/h06/*
eClass: *https://eclass.duth.gr/courses/419361/*

Course Description

In the context of financial management, analytical approaches aimed at supporting business decisions are presented and the tools used to approach financial and investment decisions are extensively presented. The aim of the course is to familiarize students with issues such as: a/ the timeless value of money b/ the analysis of financial statements, c/ the forecasting of financing needs, d/ the balance of risk / return, e/ the management of the company's assets f/ the analysis of investment decisions.

Purpose of the course

The purpose of the course is to familiarize students with topics such as: • the value of money over time, • the analysis of financial statements, • the forecasting of financing needs, • the balance of risk / return, • the management of business assets, • the analysis of investment decisions. Upon successful completion of the course, students will be able to: • Know the function and purpose of financial management, as well as the concept of risk. • Assess investments under conditions of uncertainty by applying the

adjustment of the discount rate to risk. • Study the capital structure of enterprises and the factors that affect it. • Evaluate dividend policy systems and models. • Use the analysis of indicators to evaluate enterprises.

ΕΠ0: Internship (ECTS:3)

Instructor: Associate Professor Zinon Vlahostergios
webpage: *https://pme.duth.gr/proptixiaka/praktiki-askisi/*

Elective Compulsory Courses for Spring Semesters (offered by the PME Department)

ST3E: Numerical Analysis (Theory:2, Exercises:1, Labs:1, ECTS:3)

Instructor: Professor Stefanos Katsavounis
webpage: *https://pme.duth.gr/proptixiaka/courses/st3e/*
eClass: *https://eclass.duth.gr/courses/TME242/*

Course Description

Introduction to Numerical Analysis, •Numerical Calculations and Errors, •Numerical Solution of Nonlinear Equations. Closed space methods & convergence: dichotomy, regula-falsi, open space & convergence. Open-space methods & convergence: cutting, Newton-Raphson, iterative fixedpoint method). Systems of Nonlinear Equations, •Numerical Solution of Systems of Linear Equations. Direct methods: Gauss elimination, Gauss-Jordan, LU factorization. Iterative methods: Jacobi, Gauss-Seidel, sequential hyperrelaxation. •Interpolation. Polynomial approximation, Lagrange interpolation, Newton divided difference method. •Numerical integration. Closed Newton-Cotes types: Parallelogram rule, Parallelogram compound rule, Trapezium rule, Trapezium compound rule, Simpson 1/3 & 3/8, Romberg algorithm, Gauss integration. •Numerical solution of ordinary differential equations. Euler method. Improved Euler method. Runge-Kutta methods: 2nd, 3rd and 4th grade. Finite difference method. Systems of ordinary differential equations. •Applications in C and MATLAB.

EP10: Geographic Information Systems (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Assistant Professor Athanasios Vavatsikos
webpage: *https://pme.duth.gr/proptixiaka/courses/ep10/*
eClass: *https://eclass.duth.gr/courses/TME305/*

Course Description

Given the developments in the fields of geo-informatics in recent decades and the fact that in a large part of the decisions taken daily, explicit or implicit involvement of spatially dependent dimensions is found, the SDSSs are experiencing rapid growth. Geographic information systems (GIS) and their capabilities for retrieval, input and processing of spatial information have experienced rapid growth over the last decade. Their usefulness has been recognized in a number of problems related to the specialty of Production Engineering & Management. The coexistence of Database Management Systems and Model Databases in a common working environment has internationally recognized the role of modern GIS software as Spatial Decision Support Systems. The use

of GIS allows graduates of the Department to address cutting-edge issues related to the utilization and design of energy projects with emphasis on the fields of Renewable Energy Sources (wind, solar, biomass), the routing of vehicle fleets, the search for installation locations, and the availability of units and warehouses. The course aims to introduce students to the basic concepts governing the operation of a GIS and the learning of relevant software.

Purpose of the course

At the end of the course, students are able to: • Understand the basic concepts governing the scientific area. • Distinguish and model spatial entities that are necessary depending on the scale of study. • Implement spatial databases and draw data from analogue and digital sources. • Exercise spatial and non-spatial questions on their data. • Implement spatial operations and analyses to identify installation locations. • Formulate cartographic compositions for the presentation of data and their results. • Know the basic aspects of GIS software platform.

EP9: Geometric Transformations (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructors: Dr Anastasia Taouktsoglou
webpage: *https://pme.duth.gr/proptixiaka/courses/ep9/*
eClass: *https://eclass.duth.gr/courses/TME300/*

Course Description

The main purpose of this course is to provide the student with the necessary "language", in order to be able to understand, interpret, evaluate and describe both the concepts and the phenomena that he/she will face in the syllabus of the courses of the Department's Curriculum, as well as to solve specific problems in the science of Production Engineering and Management. In the first part of the course, students come into contact with the concept of geometric transformation. They study basic transformations of plane and space. They learn to express transformations as a product of matrices and appreciate methods of Linear Algebra, devised for this purpose: homogeneous coordinates, LU-factorization, and matrices with blocks. The expression of geometric transformations in the form of tables facilitates computer programming of any movement. In the second part of the course, students come into contact with the study of motion, the relative motion of coordinate systems, and the calculation of speed and acceleration of one system in relation to the other. Finally, they program in Mathematica, MATLAB, and GeoGebra environments to simulate real movements, which are applied in industrial production.

Purpose of the course

The successful completion of the course Geometric Transformations provides students with the opportunity to develop their skills in order to be able to: • apply in practice knowledge of Linear Algebra and Mathematical Analysis to problems of Kinematics, Mechanics and Robotics, • know and apply the basic geometric transformations of plane and space, • apply matrix theory, in order to express and program geometric transformations on the computer, • apply geometric transformations to determine the position at which the end of a robotic arm will be located, study the relative motion of coordinate systems, calculate speed and acceleration of movement of one system relative to the other, • apply LU-factorization and block diagonalization to practical applications, • program computer algorithms learned in theory at Mathematica and Matlab, • recognize geometric transformations applied to mathematical models supporting decision-making processes in industrial management and production in general.

EP7: Project risk management (Theory:2, Exercises:0, Labs:1, ECTS: 3)

Instructor: Assistant Professor Georgios Koulinas
webpage: *https://pme.duth.gr/proptixiaka/courses/ep7/*
eClass: *https://eclass.duth.gr/courses/TME281/*

Course Description

Uncertainty Management, Incentives for the Implementation of Risk Management Processes, Analysis and Identification of Different Types of Risks, Risks, Methods of Qualitative and Quantitative Risk Analysis, Risk Management, Risk Assessment and Monitoring, Risk Management launched at various stages of the Life Cycle of a Project, Project Management with the Critical Chain method, Dealing with project cases using specialized software.

Purpose of the course

The aim of the course is to highlight the necessity of knowledge of how to use techniques and tools for the effective management of risks encountered during the implementation of projects, given the requirements for timely completion of implementation, as well as the best possible use of available resources.
The course aims to analyze the possibilities of quantifying Risks as well as to train students in the field of Risk Management, enabling them to effectively identify and manage Risks during project implementation.

Z15: Occupational Safety and Health Management (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructor: Dr. Panagiotis Marhavilas
webpage: *https://pme.duth.gr/proptixiaka/courses/z15/*

eClass: *https://eclass.duth.gr/courses/TME245/*

Course Description

The theoretical background and legal framework of Occupational Health and Safety (OHS). Sources and principles of occupational risk prevention. Identification of hazards in workplaces. Analysis of prevention and safety measures. Management of occupational risk. OHS institutions. Employers' obligations. Physical agents in OHS. Electromagnetic radiation in OHS. Noise in OHS and its management. Thermal conditions (microclimate) in OHS. Lighting conditions in the working environment. Vibrations at work. Chemical Agents in OHS. Biological agents. Ergonomic factors. Organizational risks. Prevention and safety measures. Types of prevention. Safety specifications when using work equipment. Procedure for safe maintenance of machines. Safe handling of cargoes. Work under height conditions. Minimum safety and health requirements for intra-company transport and travel. Fire safety and fire protection. Emergency planning and personal protective equipment. Minimum requirements and marking of workplaces. Development of a method of occupational risk assessment. Hazard analysis. Qualitative and quantitative risk assessment. Applied risk analysis in industry.

Purpose of the course

Upon successful completion of the course, students will be able to: • Critically evaluate the modern theory of safety and risk management, • Demonstrate in-depth knowledge of different techniques of risk analysis and system failures, • Understand the basic and critical characteristics of systems security and risk management issues, • Demonstrate in-depth knowledge of different systems risk analysis and risk assessment techniques, • Identify and understand the key factors of an organization's (or business') success in terms of systems security and risk management, • Know the basic tools and techniques of analysis and risk assessment in the workplace, and how these are used to ensure successful risk management, • Collaborate with fellow students to create and present a written risk assessment as a study project case study.

I05: Total Quality Management (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructor: Gabriel Chaitidis (Lab Teaching Staff)
webpage: *https://pme.duth.gr/proptixiaka/courses/th05/*
eClass:

Course Description

The course presents the main characteristics of the new way of management known as "Total Quality Management" or TQM. In particular, it identifies the strategic importance of quality for the competitiveness of each enterprise, the basic principles of TQM, the reasons for its adoption and the organizational changes necessary for the successful implementation of TQM in combination with

the decisive role of the human factor in its further development. The nature, particularities, and role of the quality of services offered by a business are then examined, as well as the role and importance of the quality of goods supplied by the company from third parties. The following presents how TQM is implemented, as a set of general applied approaches to improve quality and competitiveness, as well as "techniques" that have proven effective for the development and implementation of TQM. Finally, the relationship between TQM and lean management is examined.

Purpose of the course

By the end of the semester, students should have understood: 1/ Perception and understanding of the modern business environment on BE and TQM issues related to their successful operation. 2/ Contact and consolidation of the principles and mode of operation of modern systems of Business Excellence and TQM. 3/ Familiarity with modern theories and tools of BE and TQM, as well as with measurement, management, and assurance systems. 4/ Case study in industry, construction, health, education, etc. 5/ The elements of the TQM and BE systems and the main problems they are called upon to face. 6/ Important organizational methodologies and operational frameworks for TQM and BE achievement. 7/ What tools and methods are appropriate for each business, and how should a TQM-BE system be designed and implemented?

ST8Y: Management Accounting (Theory:3, Exercises:0, Labs:0, ECTS:3)

Instructor: Associate Professor Christina Bampatsou
webpage: *https://pme.duth.gr/proptixiaka/courses/st8y/*
eClass: *https://eclass.duth.gr/courses/419360/*

Course Description

Introduction to Management Accounting - Introduction to the concept of cost and costing - Types and classifications of costs - Basic elements of production costs (raw materials, direct labor, general industrial expenses (GIE)) - Cost of Goods Produced - Cost of Goods Sold - GIE Allocation Coefficient - Allocation of GIE to Business Departments - Introduction to budgets - Behavioral issues related to budgeting - Preparation of a total budget - Sales budget - Production budget - Raw materials consumption budget - Raw materials purchase budget - Direct labor budget - Overhead budget - Ending inventory value budget - Cost of goods sold budget - Administrative expenses budget - Sales expense budget - Cash budget preparation - Static and flexible budgets - Investment budget - Total revenue and expense break-even point.

Purpose of the course

After familiarizing students with the basic principles governing costing, they approach the issue of budget formation and examine possible alternative scenarios through the calculation of key indicators for determining deviations and the analysis of the break-even point.

E9E: Dynamic Programming (Theory:2, Exercises:1, Labs:0, ECTS:3)

The course is not offered in the current academic year

Instructor: Contract teaching assignment
webpage: *https://pme.duth.gr/proptixiaka/courses/e9e/*
eClass:

Course Description

Combinatorial problems. Optimal discrete-time control. Optimal continuous time control. Variant dynamic programming algorithms. Stochastic dynamic programming. Applications. Practical application options.

Purpose of the course

At the end of the semester, students should: • Develop the intuitive ability to identify problems that can fit into the general framework of dynamic programming methodology. • Identify the stages into which a problem can be divided, to make the best decision in each of them, for the final optimal solution of the problem. • Be able to implement dynamic planning, solve operational problems, especially those that require a series of consecutive decisions to be taken over a given time horizon.
• Be able to recognize the difference between stochastic and non-stochastic processes and the importance of stochastic models for better depicting problems that arise in everyday life, through mathematical models. • Be able to write a written essay on one of the dynamic programming problems and, through it, analyze any difficulties or problems that arise and suggest ways to solve them optimally.

C5E: Introduction to Economic Analysis (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructor: Associate Professor Christina Bampatsou
webpage: *https://pme.duth.gr/proptixiaka/courses/g5e/*
eClass: *https://eclass.duth.gr/courses/419359/*

Course Description

The market system: How markets work - Supply and demand - Elasticity and its applications - Government intervention in markets - Maximum and minimum prices - Taxation and subsidies - The theory of production and production costs - Total, average, and marginal product - Total, average, and marginal cost - The competitive market model - Forms of imperfect competition - Monopolies - Monopolistic competition and oligopoly - Gross Domestic Product - Unemployment - Inflation and price stagnation - Monetary and fiscal policy (IS-LM model)

Purpose of the course

The aim of the course is to study and consolidate fundamental concepts of Microeconomics and Macroeconomics, and interpret them in the context of applied economic analysis. Upon successful completion of the course, students are expected to have acquired the necessary knowledge to: analyze issues of microeconomic interest in the context of business operations under conditions of perfect and imperfect competition – use appropriate mathematical techniques, graphical and economic analysis – utilize the knowledge they have acquired and apply it to the real economy – interpret the effects of interventions and other structural changes on the welfare of households and businesses – capture the overall picture of the economy and its relationship with the business environment – analyze developments in macroeconomic policy and the impact of various measures on the broader economy and on the decisions of microeconomic agents.

Z05: Quality Control (Theory:3, Exercises:0, Labs:0, ECTS:3)

Instructors: Lab teaching Staff Gabriel Chaitidis
webpage: *https://pme.duth.gr/proptixiaka/courses/z05/*
eClass: *https://eclass.duth.gr/courses/TME308/*

Course Description

Historical development and approach to the concept of quality costs and methods of quality improvement. Analysis of production process capabilities and general principles of control diagrams. Control diagrams of sorting characteristics and measurement characteristics. Acceptance quality control by sorting and measuring. Methods for designing sample strategies.

Purpose of the course

Upon successful completion of the course, students will be able to: • design quality management techniques during the development phase and production of a product. • apply the techniques of statistical quality control in order to improve the quality of a product.

EP1: Market Research (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructor: Professor Thomas Fotiadis
webpage: *https://pme.duth.gr/proptixiaka/courses/ep1/*
eClass: *https://eclass.duth.gr/courses/ENG104/*

Course Description

The course presents the principles, methodologies and procedures of Market Research in the context of the modern business environment. Additionally, the correlation of the subject matter with the individual areas of the marketing field is sought. The following topics are analyzed: The purpose, importance and role of Market Research, ethical issues related to research, information systems, sources of information and data, stages of the research process, methods of data collection and analysis, research techniques and applications

Purpose of the course

The desired outcome and purpose of the course is to understand, assimilate, and apply the theoretical framework, as well as expose students to the issues that Market Research is called upon to manage. To achieve the above objectives, the following are examined: a/ the various methods and techniques of data collection b/ the sources of data and information and c) the research design process. Additional objectives include the development of students' ability to utilize modern marketing information systems and evaluate marketing and market research in terms of their scientific correctness and effectiveness.

I06: Thermal Machines (Theory:2, Exercises:1, Labs:0 ECTS:3)

Instructor: Associate Professor Zinon Vlahostergios
webpage:
eClass: *https://eclass.duth.gr/courses/419346/*

Course Description

The course covers the following topics: Basic concepts, Presentation and applications of thermal machines. Review of fundamental thermodynamic concepts necessary for understanding the operating principles of thermal machines. Thermal machines and the Second Law of Thermodynamics. Thermal machines, heat pumps, and refrigeration systems. Exergy and available energy in thermodynamic systems. Performance of thermal machines based on the Second Law of Thermodynamics. Exergy transfer via heat, work, and mass. The principle of exergy degradation and destruction. Presentation of fundamental thermodynamic cycles for thermal machines (e.g., gas turbines, reciprocating engines), and determination of thermal efficiency. Performance enhancement of thermal machines (gas turbines) through regeneration and heat recovery technologies. Thermal machines with two-phase working fluids (e.g., steam – Rankine cycle), and techniques to improve thermal efficiency through regeneration and heat recovery. Combined cycles for power generation and cogeneration/trigeneration in energy production units. Introduction to compressibility effects in fluid flow within thermal machines (e.g., Ramjet, Scramjet engines). Presentation and operating principles of innovative thermal machines currently being studied and developed in international research programs.

Purpose of the course

The course aims to provide a comprehensive understanding of thermal machines and their integration into modern energy and industrial systems. Emphasis is placed on thermodynamic analysis, exergy evaluation, and performance optimization providing skills to design, assess, and manage energy-efficient solutions in production, power generation, and sustainable technology applications.

I01: Simulation (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Assistant Professor Alexandros Xanthopoulos
webpage: *https://pme.duth.gr/proptixiaka/courses/th01/*
eClass: *https://eclass.duth.gr/courses/TME276/*

Course Description

• Introduction – modeling system/model/process, model types, types of simulation, applications and advantages of simulation, • System categories – classification of system categories, characteristics of discrete event systems, examples/applications of discrete event systems, • Event-oriented simulation methodology – simulation model elements (set of events, feasible events, time variables, etc.), simulation algorithm structure, control (control), etc., • Process-oriented simulation methodology – entities, processes, resources, queues, modeling of a simple discrete event system, • Practical application – development of discrete event model in

general purpose programming language, development of discrete event simulation model in open source software, 3D graphics and animation, evaluation of system performance measures, execution of experiments.

Purpose of the course

Upon successful completion of the course the student will be able to: a/ Understand the features of a discrete event system, the structure of the relevant simulation algorithm and the modeling process, b/ Implement dynamical systems simulators in general purpose programming languages, e.g. C/C++, c/ Implement system simulators in specialized open source software packages, e.g. JaamSim

EP2: Strategic Marketing (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructor: Professor Thomas Fotiadis
webpage: *https://pme.duth.gr/proptixiaka/courses/ep02/*
eClass: *https://eclass.duth.gr/courses/ENG104/*

Course Description

The course examines the basic concepts and issues related to strategic decision-making that guide marketing efforts, which are necessary for the survival and growth of a business in a rapidly changing and challenging business environment. In particular, the course focuses on the process of strategic marketing, which consists of the following main activities: a/ strategic situation analysis, which market and competition analysis, market segmentation and continuous market learning, b/ design of marketing strategies, which examines targeting and positioning strategies, marketing relationship strategies and new product design, c/ development of a marketing program, which consists of product, distribution, pricing and promotion strategies specifically designed to meet the needs of the targeted buyers and d/ implementation and management of marketing strategy, which examines issues related to the organization and implementation of a marketing strategy. Great emphasis is given, in addition to developing, understanding and providing the necessary framework-theoretical background of knowledge, on the thorough presentation and understanding of the value of strategic planning, its position in the turbulent and highly competitive environment that composes the modern business firmament, its role and its contribution to the understanding and creation of competitive advantage in the presentation and practical use of tools that assist in perception and understanding of the variables that make up the business arena. In addition, it is emphasized that a high degree of importance is given to the understanding and development of the ability to use diagnostic tools that essentially make the entire process of strategic planning oriented to the practical and practical application of the theoretical framework in a valid, reliable and thorough way, since through them the active participation, involvement and involvement in an interactive and experiential way in the whole of the above process is sought design and refining.

Purpose of the course

The course has the following objectives: a/ acquiring, assimilating and applying the basic theoretical knowledge around strategic marketing, b/ developing adequate skills and competencies required for the analysis, planning, implementation and control of marketing strategies, c/ learning basic analytical tools and techniques necessary for the effective and efficient handling of strategic marketing issues, d/ exposure to strategic marketing problems and provision of practical solutions to them, e/ familiarization with realistic strategic marketing issues and adoption of a practical approach to the design and implementation of marketing strategy and f/ information about the latest developments in the field of strategic marketing.

C7Y: Computer Aided Design (CAD) (Theory:1, Exercises:0, Labs:2, ECTS:3)

Instructor: Contract teaching assignment
webpage: *https://pme.duth.gr/proptixiaka/courses/g7y/*
eClass: *https://eclass.duth.gr/courses/TME100/*

Course Description

Basic principles of computer-aided design (CAD-Computer Aided Design), Classification of design systems and basic algorithms, Modeling and management of curves, surfaces and solids, Rapid prototyping, Data exchange between CAD systems, Design of simple and complex assembled mechanical devices using design software.

Purpose of the course

The course aims to introduce the basic principles of computer-aided design (CAD-Computer Aided Design). Specifically, in designing simple and complex assembled mechanical devices using design software. The candidate Engineer, after completing the course, should be able to design three-dimensional perspective drawings of common mechanical devices, as well as their individual parts.

EP5: Service Design (Theory:2, Exercises:0, Labs:1, ECTS:3)

The course will not be available in the Academic Year 2025-2026

Instructor: Contract teaching assignment
webpage: *https://pme.duth.gr/proptixiaka/courses/ep5/*
eClass:

Course Description

Introduction to service design. Analysis of stakeholders, the ecology of a service and user needs. Development of ideas for new services. Prototyping of services. Analysis of the process of providing a service (Customer Journey Mapping. Service Blueprinting).

Product design and service design. From service design to experience design. Case studies: Design passenger services on a rail network. Service planning in a hospital emergency service center. Design of an interactive consumer information service.

Purpose of the course

Service design is the activity of planning and organizing the provision and support of services according to the needs of customers and the capabilities of the service provider, so that a service is user-friendly, competitive for its customers, and sustainable for its provider. The course aims to familiarize students with methods for developing ideas for new services and adapting them to consumer needs.

EP3: Computer Vision (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructor: Professor Antonios Gasteratos
webpage: *https://pme.duth.gr/proptixiaka/courses/ep03/*
eClass: *https://eclass.duth.gr/courses/TME103/*

Course Description

The course material outline includes: Image formation, pixels, and color spaces. Image processing, histograms, filters. Image analysis, feature detection, description, and matching. Cameras, position, orientation, kinematics, models and calibration, projection perspective, geometric transformations, homography, stereoscopic positioning. Active vision, visual flow, tracking. Object recognition, segmentation, description, matching, recognition.

Purpose of the course

Upon successful completion of the course, the student will: • Understand the meaning of the image and how it is represented in the color space, • Understand the concept of camera model and stereoscopic vision, applying them to solve various computer vision problems, • Construct and will apply filters to eliminate "noise" in the image, • Apply algorithms to identify and extract features of an image, • Understand and apply algorithms for grouping entities and use supervised learning classification methods for categorization into known groups, as well as convolutional networks, • Learn to work as a team to achieve specific technical objectives.

EP11: Materials Technology II (Theory:2, Exercises:1, Labs:0, ECTS:3)

Instructor: Assistant Professor Argyrios Anagnostopoulos
webpage: *https://pme.duth.gr/proptixiaka/courses/ep11/*
eClass: *https://eclass.duth.gr/courses/TME297/*

Course Description

Preparation and solidification of metals. Endotrachysis, restoration and recrystallization, movement of grain boundaries, pelletization, and adhesion. Theory of defects of crystal structure and perturbations. Metal materials forming processes, Solid solutions, Structure transformations, Heat treatments, Alloys, powder metallurgy, Corrosion – Oxidation. Ceramics, polymers, composite nanomaterials. Metallography techniques. Optical and electron microscopy and microanalysis. Material characterization, XRD – XRF techniques – neutron diffraction. Mechanisms of hardening of metals. Elastic and plastic behavior of metals. Mechanical properties. Breakage and mechanical elements of breakage. Elements of fragmentography. Fragility and iPME CT resistance, transition temperature. Weariness. Creep. High temperature corrosion and oxidation.

Purpose of the course

The course is a continuation of the "Materials technology I" course. The greatest emphasis is given to metallic materials, with a primary focus on steels. There is an emphasis on chapters such as diagrams, phase transformations, crystal structures, and mechanical behavior. Non-metallic materials such as ceramics, polymers, and composites are also presented, but to a lesser extent. Finally, reference is made to new materials and new technologies, mainly surface treatment of materials.

EP4: Reliability and Maintenance of Technological Systems (Theory:2, Exercises:0, Labs:1, ECTS:3)

Instructors: contract teaching assignment
webpage: *https://pme.duth.gr/proptixiaka/courses/ep4/*
eClass: *https://eclass.duth.gr/courses/TME273/*

Course Description

Basic reliability concepts, Basic reliability functions: component life, reliability function, average uptime, availability, reliability distributions: normal, poisson, binomial, exponential, Weibull, simple form system reliability: systems with serial, parallel, mixed layout, system comparisons, maintenance procedure: basic concepts, maintainability, indicators, maintenance policies: introduction, maintenance and fault recovery, planned, preventive, Conditionally Based Maintenance, Total Productive Maintenance, Replacement Policies.

Purpose of the Course

At the end of the course, the student should be familiar with the following concepts: • Reliability and availability of technical systems, • Reliability calculation methods, • Technical system maintenance, • Maintenance policies, • Fault repair theory, • Risk analysis, including analysis of failure types, and fault tree analysis.

EP0: Internship Programme (ECTS:3)

Instructor: Associate Professor Zinon Vlahostergios
webpage: *https://pme.duth.gr/proptixiaka/praktiki-askisi/*

Postgraduate Studies at the Department of Production and Management Engineering

Postgraduate Studies Program

General data

The Department of Production and Management Engineering has been organizing and operating, since the academic year 2018-2019, a Postgraduate Program (PG) entitled: "Master in Innovation, Technology and Business Management" (Government Gazette B' 2774 / 12-7-2018). The Postgraduate Program will operate from the academic year 2019-2020. The subject of the MSc is Business Administration with emphasis on the Technological, Technical-Construction, and Industrial sectors. The Postgraduate Program awards a Postgraduate Diploma (MSc) with the following specializations: a) Operational, Production and Logistics Management, b) Organizational and Product Design, c) Systems Management and Technology.

The postgraduate program is part of the strategic planning of the Institution, is governed by scientific coherence and aims at the further promotion of knowledge, the development of research, the satisfaction of the educational, research, social, cultural and developmental needs of the country, the high-level specialization of graduates in theoretical and applied areas of specific cognitive disciplines, special thematic units or individual branches of cognitive subjects of the first cycle of studies of the Department.

With the PG program, the Department fulfills its mission by teaching, researching, and applying systematic ways to improve productivity (increasing the quality and quantity of production while reducing available resources) and training qualified engineers capable of studying, researching, and dealing scientifically with the design of the structure and operation of modern technological and administrative systems.

The objectives of the PG program are:

i/ The creation of competent and specialized executives – young scientists who will staff Greek businesses and organizations.

ii/ The acquisition of specific knowledge and skills related to the field of Business Administration by graduates mainly of Polytechnic Schools.

iii/ The continuous training of teachers on specialized issues in their subject.

iv/ The strengthening of research and innovation at the regional and national level.

v/ The production of new knowledge through research at the level of postgraduate dissertations.

vi/ The connection of the PME Department with industry.

vii/ The improvement of the logistical infrastructure of the PME Department.

The operation of the Program is governed by the Regulation of Postgraduate Studies as published in Government Gazette B' 3659/28-8-2018.

Coordinating Committee of the Postgraduate Program

The coordinating committee of the Postgraduate Program consists of Professors A. Gasteratos, P. Botsaris, and Th. Fotiadis, P. Chatzoglou, and Assistant Professor A. Diamantidis

Curriculum

The total number of ECTS required to obtain the MSc degree is 90 (for Postgraduate Studies with a duration of three semesters). Upon enrollment, the student receives the annual Academic Calendar of the Program from the Secretariat.
To obtain the MSc degree, compulsory attendance and successful completion of ten (10) courses in total, distributed across the first two semesters of study (A and B), are required. Of these, seven (7) are core and three (3) are specialized. The total number of credits of the European Credit Transfer and Accumulation System (ECTS) required for the acquisition of the MSc degree is 90. Students select both core and specialization courses through different groups of courses.
Online lectures are conducted for all courses in the Postgraduate Program. As far as distance education is concerned, this is achieved in this program by utilizing modern digital platforms for communication and/or teaching, such as Microsoft Teams, Skype for Business, Google Classroom, Google Meet, and Zoom. Each course supervisor announces to students the link to participate in the course, while the link is also communicated to the secretariat of the Postgraduate Program. In this Postgraduate Program, digital educational materials for each course are posted on eClass.duth.a graduate educational platform, where the course supervisor posts the corresponding outline for the course, the files of the presentations used in the weekly lectures, as well as supporting files and links to the topic of the lecture, e.g., online videos, published scientific papers and articles, etc. Suppose a digital assessment of students is required in an emergency. In such cases, various procedures can be followed, including oral examinations, multiple-choice tests, short-answer questions, essay development questions, and problem-solving exercises, using either online synchronous communication and teaching platforms or the asynchronous educational platform eclass.duth.gr. In addition, the use of asynchronous distance learning methods may not exceed twenty-five percent (25%) of the credits of the Postgraduate Program.
The structure of the PG program specializations is as follows:
A. Operational, Production, and Logistics Management
B. Organizational and Product Design
C. Systems Management and Technology
To ensure the smooth operation of the Postgraduate Program, if a specialization is not selected by at least five (5) postgraduate students in a specific period, then this specialization is not offered during this academic year. Students who initially chose a specialization that will not be offered will be asked to choose one of the two remaining options with a new application.

In addition, the following cases of specialization courses offered apply depending on the number of students admitted per academic year:

1. up to thirty (30) admissions, three (3) courses offered per specialization, selected by the C.C. of the Postgraduate Program and approved by the Assembly of the PME Department.
2. from thirty-one (31) to forty (40) admissions, up to four (4) courses offered per specialization, selected by the C.C. of the Postgraduate Program and approved by the Assembly of the PME Department.
3. from forty-one (41) to fifty (50) admissions, up to five (5) courses offered per specialization, selected by the C.C. of the Postgraduate Program and approved by the Assembly of the PME Department.

During the third (C) semester of studies, the preparation of the postgraduate thesis is required, the credits of which (ECTS) are set at 30.

SEMESTER A (5 Options out of 9)

CODE	CORE COURSES	TYPE	ECTS
COR -1	Project Management	CORE	6
COR -2	Strategic Management and Business Policy	CORE	6
COR -3	Financial Management and Modelling	CORE	6
COR -6	Technology, Innovation, and Entrepreneurship Management	CORE	6
COR -7	Systems Engineering	CORE	6
COR -8	Total Quality Management and Business Excellence	CORE	6
COR -9	Production and Operations Management	CORE	6
COR -11	Human Capital and Organizational Development	CORE	6
COR -12	Business Process Management and Reengineering	CORE	6
	TOTAL FIRST SEMESTER		30

SEMESTER B (2 Options out of 3)

CODE	CORE COURSES	TYPE	ECTS
COR -4	Research Methodology and Applied Statistics	ELECTIVE	6
COR -5	Business Plan Development & Business Games	ELECTIVE	6
COR -10	Innovation and High Technology Marketing	ELECTIVE	6

	TOTAL SECOND SEMESTER		12

SEMESTER B (3 Options out of 6 of Specialization A)

CODE	TRACK COURSES A (Operations, Production and Logistics Management)	TYPE	ECTS
OPLM -1	Supply Chain Management	ELECTIVE	6
OPLM -3	Inventory Control and Production Systems	ELECTIVE	6
OPLM -5	System Security and Risk Management	ELECTIVE	6
OPLM -6	Business Intelligence	ELECTIVE	6
OPLM -7	Enterprise Resource Management Systems	ELECTIVE	6
OPLM -8	Sustainable Management of Industrial Systems	ELECTIVE	6
	TOTAL SECOND SEMESTER		18

SEMESTER B (3 Options out of 6 of Specialization B)

CODE	TRACK SPECIALIZATION B (Organizational and Product Design)	TYPE	ECTS
OPD -1	Management Information Systems and Knowledge Management	ELECTIVE	6
OPD -4	Product Design and Development	ELECTIVE	6
OPD -5	Leadership and Organizational Behavior	ELECTIVE	6
OPD -6	Strategic Human Resources Management	ELECTIVE	6
OPD -7	Planning, Marketing, and Service Management	ELECTIVE	6
OPD -8	Designing and Manufacture in Circular Economy	ELECTIVE	6
	TOTAL SECOND SEMESTER		18

SEMESTER B (3 Options out of 8 of Specialization C)

CODE	TRACK COURSES C (Systems Management and Technology)	TYPE	ECTS
SMT -1	Reverse Engineering and Rapid Prototyping	ELECTIVE	6
SMT -2	Digital Factory	ELECTIVE	6
SMT -3	Industrial Ecology	ELECTIVE	6
SMT -4	Mechanical Design for Circular Economy	ELECTIVE	6

SMT -7	Industrial Automation and Robotics	ELECTIVE	6
SMT -8	Artificial Intelligence and Machine Learning	ELECTIVE	6
SMT -9	Smart Technologies	ELECTIVE	6
SMT -10	Business Decision Analysis	ELECTIVE	6
	TOTAL SECOND SEMESTER		18

SEMESTER C

CODE	**COURSES**	**TYPE**	**ECTS**
DPL -1	Postgraduate Thesis	MANDATORY	30
	TOTAL FOR THE THIRD SEMESTER		30

Doctoral Studies Program (PhD)

General Data

The Department of Production and Management Engineering operates a PhD Program. Doctoral studies are offered free of charge. They specialize in the cognitive and related fields of the Department of Production Engineering and Management, aiming to produce high-quality scientific research and to develop scientists capable of contributing to the advancement of science, research, and applications. The PhD holders of the Department are intended to staff the educational, research, and business positions in Greece and abroad. Right to apply for a doctoral dissertation at the Department of PME. Have: a/ holders of a Postgraduate Diploma from a domestic university or recognized as equivalent abroad, or a single and inseparable postgraduate level 2 degree, and b/ in special cases, graduates of five years of study who have prepared a diploma thesis of at least one semester and have to demonstrate research work. The operation of the PhD program is governed by the provisions of Law 4957/2022 and its Internal Regulation of the Foundation (Government Gazette B' 3290/11.06.2024). Adjustments to individual issues related to the operation of the Department will be determined by its own internal regulations that are currently being formulated.

Project Website

More information about the application process and the rules of procedure of the PhD program can be found on the website of the PME Department at the following link:

PhD website: *https://pme.duth.gr/metaptixiaka/didaktorika/*

Cartographic Data of the PME Department

PROKAT Engineering School Complex

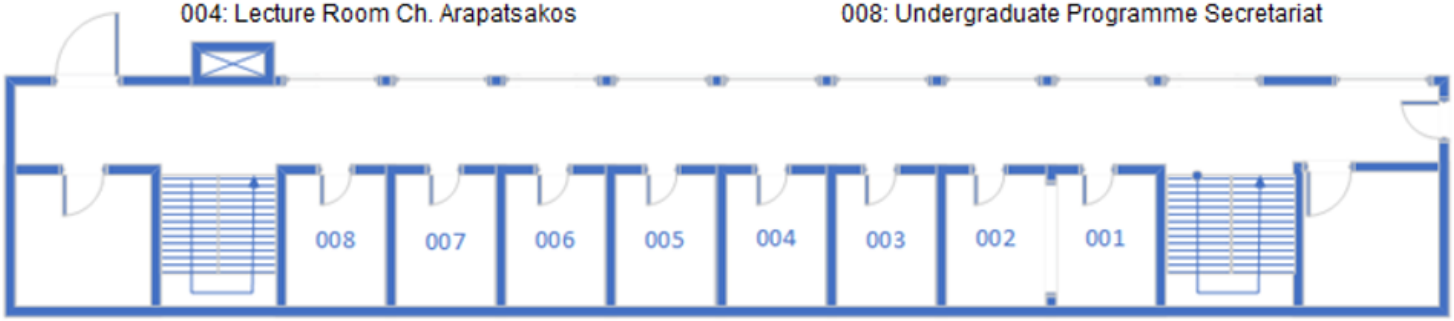
ΔΗΜΟΚΡΙΤΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΡΑΚΗΣ | DEMOCRITUS UNIVERSITY OF THRACE

- E1 North Gate (V. Olgas)
- I PME Administration, Offices, Labs
- II Incubator - Research Committee
- III Classrooms Env. Eng. Dept.
- IV Classrooms PME Dept.
- V PROKAT amphitheater
- VI Administration - Deanship
- E2 South Gate
- VII Hydraulics Labs
- VIII PME Dept. Labs
- IX Computer and network center
- X Eng. School Library
- XIII Electrical and Computer Eng. Dept. Labs
- PME Dept. buildings
- Buildings of other Depts. of Eng. School
- Eng. School administration buildings
- Xanthi Eng. School bounds

Building I Layout -Ground Floor and 1st Floor

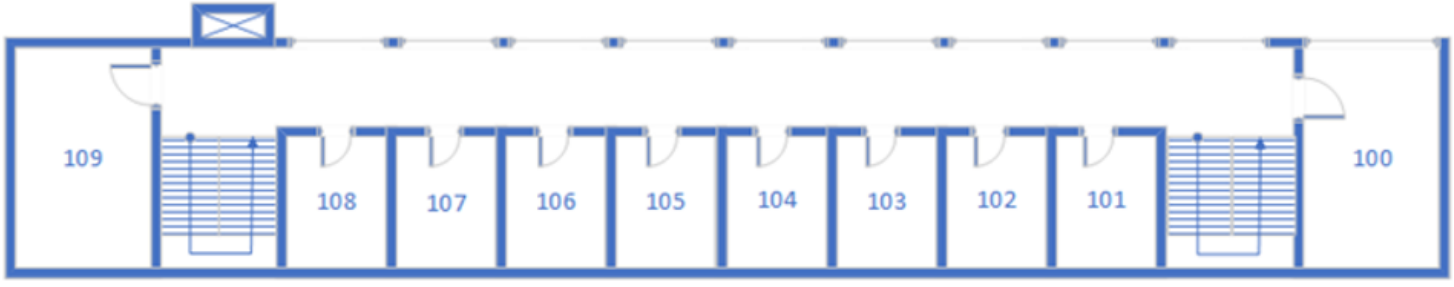
Ground Floor

001: Computer Room
002: Computer Room
003: Student Groups (DRT)
004: Lecture Room Ch. Arapatsakos
005: Conference Room
006: Administration Office
007: PhD Programme Secretariat
008: Undergraduate Programme Secretariat



First Floor

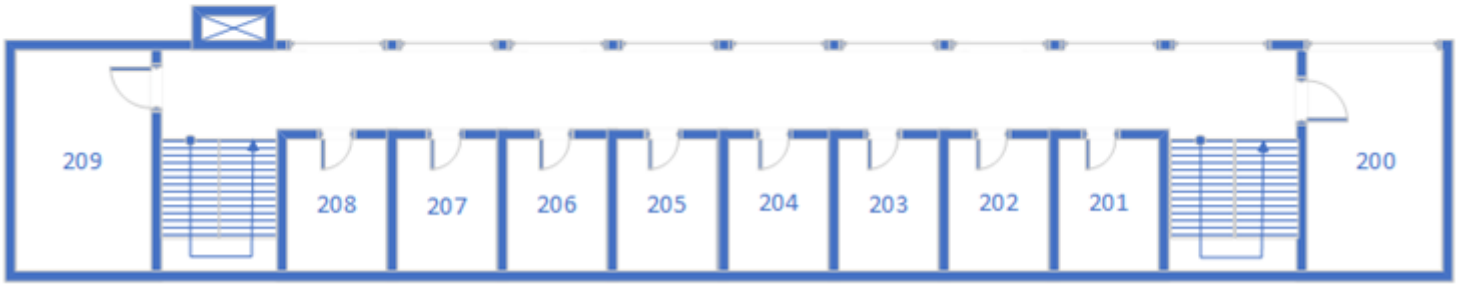
100: Associates Offices
101: Dr. H. Kyritsi, Special Technical Lab Staff
102: Professor T. Fotiadis
103: Associates and PhD candidates Office
104: Associate Professor S. Papantonopoulos
105: Associate Professor Z. Vlahostergios
106: Assistant Professor T. Karakatsanis
107: Professor P. Botsaris
108: Professor G. Gaidajis
109: Labs of Materials, Processes and Mechanics Sector



Building I Layout -2nd and 3rd Floor

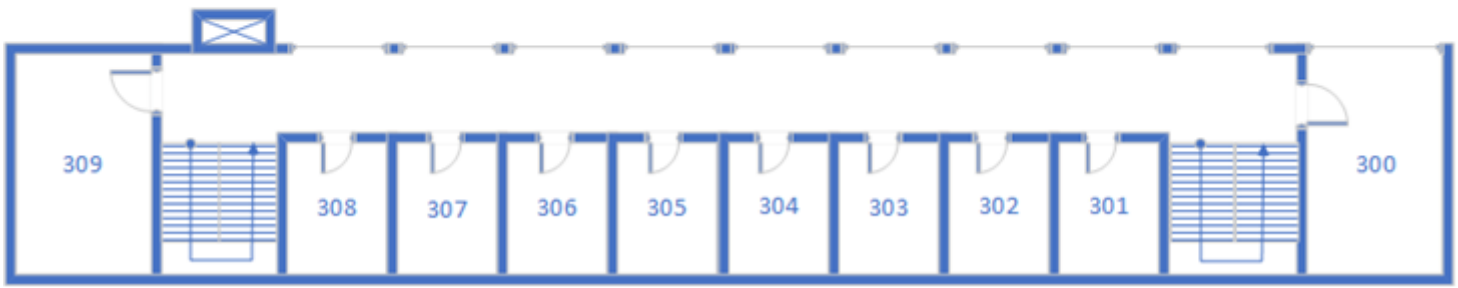
200: Dr. A. Psomoulis, Laboratory Teaching Staff
201: Instructors Office
202: Dr. P. Marhavilas, Laboratory Teaching Staff
203: Assistant Professor A. Xanthopoulos
204: Professor A. Gasteratos

205: Associates and PhD candidates Office
206: Assistant Professor A. Amanatiadis
207: Associates and PhD candidates Office
208: Professor S. Katsavounis
209: Production Systems Labs



300: Associates and PhD candidates Office
301: Professor P. Chatzoglou
302: Associates and PhD candidates Office
303: Assistant Professor A. Diamantidis
304: Dr. A. Balafoutis, Mr. G. Chaitidis
Laboratory Teaching Staff

305: Associates and PhD candidates Office
306: Associate Professor A. Vavatsikos
307: Dr. A. Taouktsoglou, Laboratory Teaching Staff
308: Assistant Professor G. Koulinas
309: Management Information Systems Lab



Useful Websites

Description	Association
Democritus University of Thrace	http://www.duth.gr
Deanship of the Faculty of Engineering	http://www.eng.duth.gr
Department of Production and Management Engineering	http://www.pme.duth.gr
Department of Civil Engineering	http://www.civil.duth.gr
Department of Electrical and Computer Engineering	http://www.ee.duth.gr
Department of Environmental Engineering	http://www.env.duth.gr
Department of Architecture	http://www.arch.duth.gr
Computer & Network Management Center	http://noc.duth.gr
Career Office	http://career.duth.gr
Central Library	http://lib.duth.gr
Research Committee	http://www.rescom.duth.gr
Eclass-Asynchronous Distance Learning Platform	https://eclass.duth.gr/eclass
Email D.U.Th.	https://webmail.duth.gr
Online Services System for Students	https://unistudent.duth.gr
Telephone Directory Service of the Democritus University of Thrace	http://ds.duth.gr
Wi-Fi (eduroam)	http://noc.duth.gr/services/wifi
Okeanos-Network Storage Service	https://okeanos.grnet.gr/home
Eudoxus-Book Management Service	http://eudoxus.gr
Erasmus-Lifelong Learning Programme	http://erasmus.duth.gr
Technical Chamber of Greece	http://web.tee.gr
Panhellenic Association of Qualified Engineers and Public Works Contractors	http://www.pedmede.gr
Panhellenic Association of Production and Management Engineers	http://mpd.gr