COURSE OUTLINE

(1) OVERVIEW

SCHOOL	MARITIME & INDUSTRY		
DEPARTMENT	INDUSTRIAL MANAGEMENT & TECHNOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	ΤΕΕΠΑ01	SEMESTER	5
COURSE TITLE	BUSINESS ANALYTICS		

DISCRETE TEACHING ACTIVITIES *In cases where ECTS credits are awarded to distinct components of the course (e.g., Lectures, Laboratory Exercises, etc.), please indicate them separately. If the credits are awarded as a whole for the entire course, please state the weekly teaching hours and the total number of credits*	WEEKLY TEACHING HOURS	ECTS
Lectures, Laboratory & Project	4	5.5
Please add additional rows if needed. A detailed description of the teaching organization and instructional methods is provided in Section (4).		

COURSE TYPE *core (C), core elective (CE), elective (E) - background, specialization, skill development*	CE - Specialization
PREREQUISITE COURSES:	None.
REQUIREMENTS:	The course includes mandatory attendance in the Laboratory sessions.
LANGUAGE OF TEACHING AND EXAMINATIONS:	Greek (English for ERASMUS students)
THIS COURSE IS AVAILABLE TO ERASMUS STUDENTS	Yes
COURSE WEBPAGE (URL)	

(2) LEARNING OUTCOMES

Learning Outcomes

The learning outcomes of the course are described, specifying the particular knowledge, skills, and competencies at the appropriate level that students will acquire upon successful completion of the course.

Please refer to Appendix A

- *Description of the Level of Learning Outcomes for each study cycle according to the Qualifications Framework of the European Higher Education Area.*
- *Descriptive Indicators of Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B.*
- *Concise Guide for Writing Learning Outcomes*

Every product and service, but also every project, production process, business operation, consumer behavior, etc. generates an abundance of data. This data is a wealth of knowledge that is often completely untapped. Modern companies, having fully understood the value that this knowledge can give to an organization, are increasingly turning in the direction of collecting and exploiting the data they have at their disposal. This course provides through practical training (using MS Excel) the fundamental tools, methodologies and techniques for preparation, enrichment, analysis and investigation of data, but also for predicting the future course of critical quantities. In this way, business analytics allows the timely diagnosis of trends and the recognition of opportunities, thus supporting project management as well as in general the making of operational and strategic decisions.

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

- Understand the potential of data analytics in business applications.
- Know the fundamentals of statistics and data analytics required for business analytics.
- Use different data sources, including data sources for big data.
- Create dynamic data analysis and presentation of results tools using MS Excel.
- Familiarize with searching "open" datasets.

General Competences

Taking into account the general competences that a graduate should have acquired (as listed in the Diploma Supplement and outlined below), which of these competences does the course aim to develop?

Searching, analyzing, and synthesizing data and information, using the necessary technologies

Project design and management

Respect for diversity and multiculturalism

Adaptation to new situations	*Respect for the natural environment*
Decision making	*Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues*
Autonomous work	*Exercising critical and self-critical thinking*
Teamwork	*Promotion of free, creative, and inductive thinking*
Working in an international environment	*…*
Working in an interdisciplinary environment	*Other competences: …*
Generation of new research ideas	

- Searching, analyzing, and synthesizing data and information, using the necessary technologies
- Adaptation to new situations
- Decision making
- Autonomous work
- Teamwork
- Generation of new research ideas
- Demonstration of social, professional, and ethical responsibility and sensitivity to gender issues
- Exercising critical and self-critical thinking
- Promotion of free, creative, and inductive thinking

(3) COURSE CONTENT

The course covers the following topics:

Week	Topics
1	Introduction to Business Analytics
2	Basics - Data types, Tables and Formulas
3	Data analysis and report creation through Pivot Tables
4	Big Data and Data Source Management
5	Power Query and Data Model Design. Power Query and Power Pivot
6	Descriptive Statistics, Quantitative and Categorical Datasets
7	Statistics of Location
8	Sampling
9	Covariance, Correlation and Linear Regression
10	Multiple Regression and Non-linear Transformations
11	Inclusion/Exclusion Decisions and Stepwise Regression
12	Timeseries and Forecasting
13	Revision

The course includes lectures, laboratory training in the Laboratory of Production Management Information Systems, and an assignment. It is noted that attendance at the Laboratory is mandatory. Furthermore, articles, audiovisual lecture material, web links to useful resources, exercises, and software are uploaded in electronic format on the eClass platform.

(4) TEACHING and LEARNING METHODS - ASSESSMENT

TEACHING MODE *Face-to-face, in-class lecturing, distance teaching and distance learning etc.*	• Face-to-face in a classroom or the lab • Distance teaching & learning (if required)
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY *Use of ICT in Teaching, Laboratory Education, Communication with students*	**Teaching**: Lectures using modern audiovisual equipment, learning support through the eClass electronic platform, synchronous distance teaching via MS Teams. **Laboratory**: open-access software **Communication with students**: face-to-face during office hours, email, eClass platform, MS Teams tools
Organization of Teaching *A detailed description of the teaching methods and approach is provided.*	

Activity	Semester Workload
Lectures	26

Lectures, seminars, laboratory exercises, fieldwork, study and analysis of literature, tutorials, internships (placements), clinical practice, artistic workshops, interactive teaching, educational visits, project work, writing assignments, artistic creation, etc. *The student's study hours for each learning activity, as well as the hours of independent study, are specified in accordance with the principles of ECTS*	<table><tr><td>Laboratory sessions</td><td>26</td></tr><tr><td>Project</td><td>35</td></tr><tr><td>Self-study of lecture material and exercises</td><td>48</td></tr><tr><td>Consultation Support</td><td>0.5</td></tr><tr><td>Exams (written)</td><td>2</td></tr><tr><td>Course Total</td><td>137.5</td></tr></table>
STUDENT ASSESSMENT *Description of the assessment process* *Language of assessment, assessment methods, formative or summative evaluation, multiple-choice tests, short-answer questions, essay questions, problem-solving, written assignments, reports, oral examinations, public presentations, laboratory work, clinical patient examination, artistic interpretation, other(s)* *Explicitly state assessment criteria and information on whether and where these criteria are accessible to students are included.*	Language of Assessment: Greek (English for ERASMUS students) Assessment Mode: Face-to-face and/or distance learning (if required) Assessment Methods: The final grade for the course is determined as follows: • 70% from the written exam, which takes place during the winter examination period or, in case of failure, during the September resits • 30% from the assignment For the successful completion of the course, students must have attended at least 80% of the Laboratory sessions. The written exam includes problem-solving exercises and short-answer questions. It is a closed-book exam. Students with Learning Difficulties: Students with certified learning difficulties in reading and writing (as recognized by the competent authority) are assessed according to the procedures established by the Department. Disclosure of Assessment Criteria: The assessment criteria are communicated during the first class and are clearly stated on the course website and the eClass platform. The exam syllabus is announced on eClass following the final lecture of the semester. The exam answers are posted on eClass after the examinations take place. Students have the right to review their graded exams and receive explanations regarding their grades. In cases of further requests, the procedures outlined in the current Study Regulations apply.

(5) SUGGESTED BIBLIOGRAPHY

- Books:

- Albright, S.C., Winston, W.I. (2024). Business Analytics, Da Vinci Publications, ISBN: 9789609732574 [133028101] – in Greek

- Journals:

- Other educational material:

- Lecture Notes and Supporting Material provided by the Instructor