COURSE OUTLINE

(1) General information

FACULTY/SCHOOL	SCHOOL OF ECONOMICS, BUSINESS & INTERNATIONAL STUDIES		
DEPARTMENT	TOURISM STUDIES		
LEVEL OF STUDY	UNDERGRADUATE		
COURSE UNIT CODE	**TSK703**	**SEMESTER**	**7th**
COURSE TITLE	BUSINESS SIMULATION – GAMES		
INDEPENDENT TEACHING ACTIVITIES *in case credits are awarded for separate components/parts of the course, e.g. in lectures, laboratory exercises, etc. If credits are awarded for the entire course, give the weekly teaching hours and the total credits*		**WEEKLY TEACHNG HOURS**	**CREDITS**
	Lectures	3	6
	Laboratory	1	
Add rows if necessary. The organization of teaching and the teaching methods used are described in detail under section 4			
COURSE TYPE *Background knowledge, Scientific expertise, General Knowledge, Skills Development*	SCIENTIFIC EXPERTISE		
PREREQUISITE COURSES:	NO		
LANGUAGE OF INSTRUCTION:	GREEK		
LANGUAGE OF EXAMINATION/ASSESSMENT:	GREEK		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	https://eclass.unipi.gr/courses/TOY179/		

(2) LEARNING OUTCOMES

Learning Outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate (certain) level, which students will acquire upon successful completion of the course, are described in detail.

It is necessary to consult:

APPENDIX A

- *Description of the level of learning outcomes for each level of study, in accordance with the European Higher Education Qualifications' Framework.*
- *Descriptive indicators for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and*

APPENDIX B

- *Guidelines for writing Learning Outcomes*

This course focuses on business simulations and business games, examining the way in which simulation and games are developed and applied in different fields. Various key concepts and techniques relating to business simulations and business games will be analysed, while the use of different examples, applications with real data, and case studies will help students to develop the necessary skills to apply simulations and games. Finally, in addition to business games, virtual enterprise programmes will be analysed using applications.

Current literature, applications, and case studies, combined with the workshop component of the course, will help students to understand academic concepts and develop skills, enabling them to:

- Design, examine and apply business simulations for solving problems and taking various decisions (e.g. marketing decisions, strategic decisions, etc.).
- Design, model and simulate business processes.
- Recognize the importance and usefulness of business games and virtual enterprises.
- Develop and implement business games.
- Apply the acquired knowledge from the use of business process simulation software.

General Competences

Taking into consideration the general competences that students/graduates must acquire (as those are described in the Diploma Supplement and are mentioned below), at which of the following does the course attendance aim?

Search for, analysis and synthesis of data and information by the use of appropriate technologies, *Adapting to new situations* *Decision-making* *Individual/Independent work* *Group/Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Introduction of innovative research*	*Project planning and management* *Respect for diversity and multiculturalism* *Environmental awareness* *Social, professional and ethical responsibility and sensitivity to gender issues* *Critical thinking* *Development of free, creative and inductive thinking* *……* *(Other…….citizenship, spiritual freedom, social awareness, altruism etc.)* *……*

- Search for, analysis and synthesis of data and information by the use of appropriate technologies
- Decision-making
- Individual/Independent work
- Group/Team work
- Project planning and management
- Critical thinking
- Development of free, creative and inductive thinking

(3) COURSE CONTENT

Theory:

- Definitions and types of simulation. Systemic approach. Analysis of the Monte Carlo simulation technique.
- Historical evolution of simulation. Wider applications of simulation. Advantages and disadvantages of simulation. Analysis of the simulation process. Simulation programming languages.
- Meaning of random numbers. Historical review of the use of random numbers. Random number generators.
- Outline of randomness tests: theories and examples. Analysis of chi-square (X2) test, equal distribution test, serial test, gap test, poker test, coupon collector's test, transfer test, runs test (Wald–Wolfowitz).
- Analysis of the steps that need to be followed for a simulation (recording historical values, calculating probabilities and random numbers intervals, creating a model, simulating, drawing conclusions).
- Business simulations. Detailed application of complex business simulations – examples (e.g. cash flow model, loss model, company transaction model, machine performance improvement model).
- Queuing theory – description of theory, characteristics of the queuing process, application of simulation to queuing theory (e.g. queuing in a bank, queuing in a restaurant, queuing in a hotel).
- Game theory – Outline of basic theory – Categories of games – Areas of game theory – Categories of games. Application of simulation to business decision making. Application of simulation to game theory (e.g. inventory, stock exchange).
- Meaning and definitions of business games. Applications and uses of business games. Meaning, definition and uses of virtual enterprises. Description of business game and virtual enterprise implementation framework.

Workshops:

- Basic concepts: mental model, stock, flow.
- An introduction to simulation software: description of capabilities, description of environment of use.
- Gradual running of a simple modeling example. Introduction of stocks, flows, other variables, connectors, variable data entry. Use of tables and graphs. Use of graphical functions. Application and configuration of simulation. Application and configuration of sensitivity analysis. Use of tools to present simulated model and simulation.
- Implementation of specific business processes for a better understanding of the simulation software. Types of complexity in simulation models (tourism variable application, tourism variable with delay application, etc.).
- Feedback systems modeling. Examples of one step processes (Little's Law). Queuing systems. Examples of multi-step processes – serial and parallel processes. Supply chain modeling. Beer game example. Use of distributions in simulation modeling (uniform, normal, exponential, Poisson, binomial). Process improvement modeling.

(4) TEACHING METHODS--ASSESSMENT

MODES OF DELIVERY *Face-to-face, in-class lecturing, distance teaching and distance learning etc.*	FACE TO FACE

USE OF INFORMATION AND COMMUNICATION TECHNOLOGY

Use of ICT in teaching, Laboratory Education, Communication with students

Use of ICT in Teaching:

- Internet for searching data for assignments (in and out of the classroom).
- Course's e-learning platform.
- Simulation software.

Use of ICT in Communication with students:

- E-mails.
- - Course's e-learning platform (messages, announcements, uploading course material, submitting assignments, exercises, etc.).

COURSE DESIGN

Description of teaching techniques, practices and methods:
Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, Internship, Art Workshop, Interactive teaching, Educational visits, projects, Essay writing, Artistic creativity, etc.

The study hours for each learning activity as well as the hours of self-directed study are given following the principles of the ECTS.

Activity/Method	*Semester workload*
Lectures • Teaching • Questions – Answers • Exercises, Applications, Case studies.	39
Laboratory	13
Group/team or individual exercises or case studies	30
Self-study	70
Examination	2
Total	**154 hours**

STUDENT PERFORMANCE EVALUATION/ASSESSMENT METHODS

Detailed description of the evaluation procedures:

Language of evaluation, assessment methods, formative or summative (conclusive), multiple choice tests, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral exam, presentation, laboratory work, other……etc.

Specifically defined evaluation criteria are stated, as well as if and where they are accessible by the students.

The evaluation is conducted in Greek.

Students are assessed with:

- Assignments – Exercises – Case studies:
  - Individual or team exercises / case studies in the classroom which constitute 10% of the final grade.
  - Individual assignments which constitute 20% of the final grade.
- Final written assessment which constitutes 70% on the final grade. It includes theoretical questions and simulation application.

(Oral assessment is provided to students who belong to specific categories and cannot participate in written examinations, after informing the secretariat and the tutor by submitting the necessary supporting documents).

The examination material is announced in the classroom, the e-learning platform and the extended outline of the course at the beginning of the academic year. Students are informed about the assessment process through the e-learning platform (e-class), as well as in the classroom by the tutor.

(5) SUGGESTED BIBLIOGRAPHY:

Suggested bibliography:

- Sfakianakis Michael, Simulation and applications, Revised edition, BROKEN HILL PUBLISHERS, 2020 (In Greek).
- Morecroft John, Strategic Modelling and Business Dynamics: A feedback systems approach, 2nd Edition, Wiley, 2015.
- McGarvey Bernard & Hannon Bruce, Dynamic Modeling for Business Management: An Introduction, Springer, 2004.

- Borshchev Andrei, The Big Book of Simulation Modeling: Multimethod Modeling with AnyLogic 6, AnyLogic North America, 2014.
- Gharajedaghi Jamshid, Systems Thinking: Managing Chaos and Complexity: A Platform for Designing Business Architecture, 3rd Edition, Morgan Kaufmann, 2011.
- Guerrero Hector, Excel Data Analysis: Modeling and Simulation, Springer, 2010.
- Hugos Michael, Enterprise Games: Using Game Mechanics to Build a Better Business, CreateSpace, 2013.

Relevant scientific journals:

1. ACM Transactions on Modeling and Computer Simulation
2. Journal of Simulation
3. Tourism Economics
4. Annals of Tourism Research
5. Journal of Travel Research
6. Tourism Review