COURSE OUTLINE

(1) GENERAL

SCHOOL	Business		
ACADEMIC UNIT	Management		
LEVEL OF STUDIES	1st Cycle		
COURSE CODE	MIS-280	**SEMESTER**	Fall, Spring
COURSE TITLE	AI Applications		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
	2.5	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	specialized general knowledge
PREREQUISITE COURSES:	MIS-155
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

After completion of the course students are expected to be able to:

- Explain fundamental concepts of AI and ML.
- Explore the various Open AI Models.
- Explore current applications of AI in different sectors.
- Assess benefits and challenges associated with AI adoption.
- Reflect on how AI may impact their future careers and daily life.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology

Project planning and management

Respect for difference and multiculturalism

Adapting to new situations	*Respect for the natural environment*
Decision-making	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Working independently	*Criticism and self-criticism*
Team work	*Production of free, creative and inductive thinking*
Working in an international environment	*……*
Working in an interdisciplinary environment	*Others…*
Production of new research ideas	*…….*

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Decision-making
Working independently
Working in an interdisciplinary environment

(3) SYLLABUS

I. Introduction to AI and Machine Learning
- Historical walkthrough of AI evolution
- Types of AI: Functionality (Narrow, General, and Super)
- Machine Learning Basics
- Key AI Applications in Business

II. AI Agents: Open AI Models
- Key Open AI Models:
  - GPT-4; l*anguage*
  - Googel *Gemini, text*
  - DALL-E 2; *imagery*
  - Whispe; *speech revognition*

III. AI applications
- Healthcare:
  - Diagnosis and Treatment
  - Patient Care
- Finance:
  - Fraud Detection
  - Algorithmic Trading
  - Credit Scoring and Lending:
- Education:
  - Personalized Learning
  - Administrative Tasks
- Other Industries
  - Transportation:
  - Customer Service:
  - Manufacturing:
  - Agriculture:

IV. Impact of AI on business models and employment

- AI in Marketing (Customer Segmentation, Recommendation Systems)
- AI in Finance (Fraud Detection, Algorithmic Trading)
- AI in Operations (Supply Chain Optimization, Predictive Maintenance)
- AI in Human Resources (Talent Acquisition, Performance Management)
- AI in Data Analytics (Patterns and Trends Recognition)

V. Ethical Considerations and Policy Considerations in AI

- Bias and Fairness in AI
- Privacy and Security Concerns
- Job Displacement and Economic Impact
- Responsible AI Development

VI. AI and personal data: privacy and security concerns.

- Personal data and its sensitivity
- Privacy Concerns
  - Data collection and processing practices:
  - Algorithmic bias and discrimination:
  - Loss of control over personal information

- Security Concerns
  - Data security risks:
  - Security vulnerabilities in AI systems

- Legal and Ethical Considerations:
  - Data protection regulations
  - Ethical frameworks for AI development and deployment

- Mitigating Risks and Promoting Responsible AI:
  - Data minimization and privacy-preserving technologies
  - Explainable AI and interpretability
  - Robustness and security measures
  - Human oversight and control

VII. AI Future Trends and Innovations

- Emerging Technologies (Combing AR/VR with AI)
- Generative AI (Advanced Content Creation; Personalized Experiences; Enhanced Creativity0)
- AI Agents (Autonomous Systems; Enhanced Productivity; Improved Efficiency)
  AI in Sustainability (Renewable Energy; Climate Adjustments; Agriculture)

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face

USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	*Use of ICT in teaching / Χρήση ΤΠΕ* *Communication with students / Επικοινωνία με Φοιτητές*

TEACHING METHODS

The manner and methods of teaching are described in detail.
Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.

The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS

Activity	*Semester workload*
Lectures/Seminars	35
Directed and Background Reading and practice	35
Project and assignments	50
Exam preparation	30
Course total	***150***

STUDENT PERFORMANCE EVALUATION

Description of the evaluation procedure

Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other

Specifically-defined evaluation criteria are given, and if and where they are accessible to students.

Weekly Assignments, Class participation/Attendance, Project Presentation, Final Exam

(5) ATTACHED BIBLIOGRAPHY

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Artificial Intelligence: A Modern Approach, 4^{tth} Ed.	Peter Norvig and Stuart J. Russell	Pearson	2021	-13: 978013750513

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
AI For Business: A practical guide for business leaders to extract value from Artificial Intelligence	Peter Verster	Rethink Press	2024	13 : 978-1781338353

The Business Case for AI: A Leader's Guide to AI Strategies, Best Practices & Real-World Applications	Kavita Ganesan	Opinosis Analytics	2022	ISIN: B09TRS55K8
Artificial Intelligence for Business	Rajendra Akerkar	Springer Cham	2019	978-3-319-97435-4
Artificial Intelligence for Business An Implementation Guide Containing Practical and Industry-Specific Case Studies, 1ST Ed.	Hemachandran K, Raul V. Rodriguez	Routledge	2024	9781032415079
Applied AI: Handbook for Business Leaders (2018)	PDF: http://sutlib2.sut.ac.th/sut_contents/H172690.pdf			
Introduction to AI for Business Amplifying Human Ingenuity with Intelligent Technologies	FREE TUTORIAL: https://www.udemy.com/course/introduction-to-ai-for-business/			