COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MINERAL RESOURCES ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	MRE102	SEMESTER	1
COURSE TITLE	INTRODUCTION TO PROGRAMMING		

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
LECTURES	2	2
LAB EXERCISES	2	2
TOTAL	**4**	**4**
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*	General background
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBSITE (URL)	https://eclass.uowm.gr/courses/MRE113/

(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*

The course aims to introduce students to the principles of programming and give them the opportunity to create computer programs of their own. It also aims to familiarize students with the rules of program writing, computer language structures and functions, and computer program development environments.

After completing the course, students will be able to develop their own programs in Python, using the knowledge and skills acquired.

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

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Decision-making
- Working independently
- Production of free, creative and inductive thinking

(3) SYLLABUS

Principles of programming, structures, and technics
Variables, types of variables, expressions, numerical calculations
Control structures, conditions, decision structures, loops
Input/output
Functions and procedures, referencing
Structured types, strings, arrays, lists, dictionaries
Algorithms and logic diagrams, structured programming techniques
Applications, search, sorting, math problems
Debugging
File management

Language: Python

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face to face, webinars, computer lab work using program development environments</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Use of data projector, specialised geostatistical software, asynchronous training platform – eclass.</td></tr>
<tr><td>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</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>28</td></tr>
<tr><td>Lab work</td><td>28</td></tr>
<tr><td>Home exercises</td><td>32</td></tr>
<tr><td>Lectures study</td><td>32</td></tr>
<tr><td>Course total</td><td>120</td></tr>
</table>
</td></tr>
<tr><td>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.</td><td>Weekly evaluation of programming exercises (40%), final written exam of theory (50%) and final written exam of lab work (10%).
Assessment criteria are provided in the course page on the eclass platform and are available to students from the start of the semester.</td></tr>
</table>

(5) SUGGESTED BIBLIOGRAPHY

- Suggested bibliography:

Καρολίδης, Δ., 2018, Μαθαίνετε Εύκολα Python, Εκδόσεις Άβακας, 575 σελ.

Lutz, M., 2009, Learning Python, 4th Edition, O'Reilly Media, 1213 σελ.

Πανέτσος, Σ., 2019, Εισαγωγή στον Προγραμματισμό με την PYTHON, Εκδόσεις Α. Τζιόλα & Υιοί, 632 σελ.

Σαμαράς, Ν., Τσιπλίδης, Κ., 2019, Το Βιβλίο της Python – Γράφοντας Κώδικα, Εκδόσεις Κριτική, 589 σελ.

Schneider, D., 2016, Εισαγωγή στον Προγραμματισμό με την PYTHON, Εκδόσεις Γκιούρδα & ΣΙΑ, 424 σελ.

- Related academic journals:

Science of Computer Programming, Elsevier

Programming and Computer Software, Springer

Journal of Computer Languages, Elsevier