COURSE OUTLINE

(1) General information

FACULTY/SCHOOL	TECHNOLOGY			
DEPARTMENT	ENVIRONMENTAL SCIENCES			
LEVEL OF STUDY	*Undergraduate*			
COURSE UNIT CODE	NEW **COURSE**	**SEMESTER**	4th	
COURSE TITLE	METEOROLOGY - CLIMATOLOGY			
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**
THEORETICAL BACKGROUND			4	5
LABORATORY PRACTICE			-	-
TOTAL			4	5
COURSE TYPE Background knowledge, Scientific expertise, General Knowledge, Skills Development	Background knowledge			
PREREQUISITE COURSES:	No			
LANGUAGE OF INSTRUCTION &EXAMINATION/ASSESSMENT:	Greek			
THE COURSE IS OFFERED TO ERASMUS STUDENTS	Yes			
COURSE WEBSITE (URL)				

(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*

At the end of the course the student will have further developed the following skills/competences: 1. a better understanding of the fundamental concepts and principles of weather and climate 2. ability to understand and critically examine basic atmospheric phenomena 3. ability to apply the acquired knowledge in interdisciplinary topics/problems (e.g. renewable energy and/or air pollution) 4. the scientific background that allow him to further deal with the fields of Meteorology, Climatology and Atmospheric Physics

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,	*Project planning and management*
Adapting to new situations	*Respect for diversity and multiculturalism*
Decision-making	*Environmental awareness*
Individual/Independent work	*Social, professional and ethical responsibility and sensitivity to gender issues*
Group/Team work	*Critical thinking*
Working in an international environment	*Development of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Introduction of innovative research	*(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*
- *Environmental awareness*
- *Critical thinking*
- *Development of free, creative and inductive thinking*

(3) COURSE CONTENT

• Introduction (the objective of Meteorology and Climatology)
• The Earth's atmosphere (composition and structure)
• Radiation (radiation laws, solar radiation, long-wave radiation) and energy budget of the planet
• Air, ground and sea surface temperature
• Atmospheric pressure and winds
• Atmospheric moisture (evaporation, air humidity, dew, fog, clouds, precipitation) • Atmospheric thermodynamics and vertical stability
• Atmospheric systems (air masses, fronts, high (anticyclones) and low (depressions) pressure systems
• Circulation of the atmosphere (general and local)
• Factors that determine, control and drive the climate, climate zones and indices
• Climate classification (Koppen)
• Climate variability (North Atlantic Oscillation and El Nino Southern Oscillation)

(4) TEACHING METHODS-ASSESSMENT

MODES OF DELIVERY Face-to-face, in-class lecturing, distance teaching and distance learning etc.	• Lectures • Semester projects - homework
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY Use of ICT in teaching, Laboratory Education, Communication with	• Powerpoint presentation. • e-mail communication. • e-class theory and exercises

<table>
<tr><td>students</td><td></td></tr>
<tr><td>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.</td><td>
<table>
<tr><th>Activity/Method</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>39</td></tr>
<tr><td>Workshop</td><td>13</td></tr>
<tr><td>Laboratory work</td><td>-</td></tr>
<tr><td>Theory study</td><td>50</td></tr>
<tr><td>Weekly individual evaluation reports for laboratory exercises</td><td>23</td></tr>
<tr><td>Course total
(25 hours of workload per credit unit)</td><td>125</td></tr>
</table>
</td></tr>
<tr><td>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.</td><td>• Final examinations
• Students should watch at least half seminars
• Work will be given during the semester to be assessed at a rate of 30% on the final grade.

<u>Final Grade</u>
70% in Final Exams + 30% in the semester projects</td></tr>
</table>

(5) SUGGESTED BIBLIOGRAPHY:

-***<u>Suggested bibliography</u>***

- Flokas A.,: Meteorology and Climatology Courses, ZITI Publications, Thessaloniki, 1997, ISBN: 960-431-288-X (in Greek)

-Sachsamanoglou H.S. and. Makrogiannis: General Meteorology, ZITI Publications, Thessaloniki, 1998, ISBN: 960-431-443-2 (in Greek)

-Sachsamanoglou H.S. and AA Bloutsos: Physical Climatology, ZITI Publications, Thessaloniki, 1998, ISBN: 9604314955 (in Greek)

- Baltas EA,: Applied Meteorology, ZITI Publications, Thessaloniki, 2013, ISBN: 978-960-456-376-0 (in Greek)

-***<u>Complementary bibliography</u>***

Teacher's notes and the full lecture material, which are available through the asynchronous education platform