# SULABUS OF THE SUBJECT "PHYSICS AND METEOROLOGY"

| Basic data of the subject | |
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| **Academic Unit:** | **Faculty of Life and Environmental Sciences** |
| **Course title:** | **Physics and Meteorology** |
| **Program:** | **Forest and Environmental Sciences** |
| **Level:** | **Bachelor** |
| **Course status:** | **Obligative (O)** |
| **Study year:** | **Year-I** |
| **Number of hours per week:** | **3 + 2** |
| **Credit value - ECTS:** | **4** |
| **Time / Location:** | **To be announced** |
| **Lecturer:** | **Dr.sc. Avni Morina** |
| **Contact details:** | Tel.number: +38344423590; email: avni_morina@yahoo.com |
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| **Subject description:** | **Teaching units:**<br>Mechanical motion. Particle kinematics. Kinematics of a rigid body. Dynamics. Work, Power and Energy. Fluid mechanics. Hydrostatics. Hydrodynamics. Temperature and kinetic theory of gases. Real gas. Thermodynamics 1. Thermodynamics 2. Surface Physics 1. Surface Physics 2. Transport phenomena. Electrostatics. Electric current. Magnetism. Geometric optics. Physical optics. Quantum optics. Matter construction. Atmosphere. Sun radiation and its components. Terrestrial and atmospheric radiation. Atmospheric moisture. Soil and air temperature. Circulation of atmosphere. Weather forecasting. Climate and climatic changes. Climate of the Kosovo. General methods of the climatic elaboration. |
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| **Goals of subjects:** | The main purpose of this course is to provide students with basic knowledge of the laws and processes that are the subject of the study of physics and meteorology and the practical application of this knowledge in forestry and environmental sciences. |
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| **Results of teaching:** | Upon successful completion of this course students will be able to:<br>• To know the basic concepts and laws of physics and meteorology.<br>• To compare and draw conclusions about various phenomena of physics and meteorology. |

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| | • Recognize and attaches to the basic concepts of physics and meteorology.<br>• Understand the laws of certain physical and meteorology phenomena<br>• To apply the acquired knowledge in different phenomena. |

| **Contribution in student load (it must correspond with the results of teaching of student)** | | | |
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| **Activities** | **Hours** | **Weeks** | **Total** |
| Lectures | 3 | 15 | 45 |
| Exercise theoretical/laboratory | 1 | 10 | 10 |
| Practice work | 1 | 15 | 15 |
| Contact with lecturer/consultations | 1 | 5 | 5 |
| Field exercises | 0 | 0 | 0 |
| Mid-terms, seminars | 1 | 1 | 1 |
| Homework | 0 | 0 | 0 |
| Individual time spent studying (at the library or home) | 1 | 10 | 10 |
| Final preparation for the exam | 1 | 10 | 10 |
| Time spent in evaluation (tests, quiz, final exam) | 4 | 1 | 4 |
| Projects, presentations, etc. | 0 | 0 | 0 |
| **Total** | | | **100 hours (4 ECTS)** |
| **Teaching methods:** | Lectures, interactive demonstrations and presentations | | |
| **Rating methods:** | By test and pre exams, oral and writing exams | | |
| **Literature** | | | |
| **Basic literature:** | • Qerim Kamberi – Fizika e përgjithshme, Prishtinë 1998<br>• Meleq Bahtijari, Ymer Halimi, Fizika për student të Farmacisë, Prishtinë 2013 | | |

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| | • Spiro Grazhdani. 2010. Punë Praktike në Fizikë-Meteorologji. Shtëpia botuese: REDONA PUBLISHIND, 344 f. |
| **Additional literature:** | • James Holton & Gregory J Hakim**.** 2012. An Introduction to Dynamic Meteorology, 5th Edition. Academic Press, 552 pp.<br>• John Marshall. 2008. Atmosphere, Ocean, and Climate Dynamics**,** 8 editions. Academic Press, Inc., 319 pp.<br>• Roger G. Barry. 2009. Atmosphere, Weather and Climate - 9th edition. Routledge N. Y., 399 pp |

| **Designed plan of study** | | |
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| **Week** | **Lessons** | **Excercises** |
| **First week:** | Kinematics of particle. Kinematics of a rigid body | General Instructions |
| **Second week:** | Dynamics. Work, Power and Energy | Lab: Measurement of atmospheric pressure by barometers |
| **Third week:** | Fluid mechanics. Hydrostatics. Hydrodynamics | Lab: Measurement of atmospheric pressure by |
| **Fourth week:** | Temperature and kinetic theory of gases. Real gas | Lab: Measurement of soil and air temperature by thermometers |
| **Fifth week:** | Thermodynamics 1. Thermodynamics 2 | Lab: Measurement of soil and air temperature by thermograph |
| **Sixth week:** | Surface Physics 1. Surface Physics 2 | Lab: Measurement of air humidity by Assmann psychrometer |
| **Seventh week:** | Transport phenomena. Electrostatics | Lab: Measurement of air humidity by hygrometers and hygrograph |
| **Eighth week:** | Electric current. Magnetism | Intermediate exam 1 |
| **Ninth week:** | Light, the nature of light. Geometric optics. Physical optics | Lab: Wind measurement |

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| **Tenth week:** | Quantum optics. Matter construction | Lab: Precipitation measurement: Pluviometer, pluviograph. |
| **Eleventh week:** | Atmosphere. Sun radiation and its components | Lab: Measurement of sunshine duration |
| **Twelfth week:** | Terrestrial and atmospheric radiation. Atmospheric moisture. | Lab: Measurement of solar radiation |
| **Thirteenth week:** | Condensation. Clouds. Formation of precipitation. Circulation of atmosphere | Lab: Estimating evapotranspiration of reference plants and plant coefficients |
| **Fourteenth week:** | Weather forecasting. Climate. Climate factors. Climatic classifications | Intermediate exam 2 |
| **Fifteenth week:** | Climate of the Kosovo. General methods of the climatic elaboration | Practice on climate changes |
| **Academic policies and courtesy rules:** | | |
| Regular and active participation of students in lectures, exercises (practical part) and in seminar work. Keeping quiet in lecture, disabling mobile phones, timely access to the classroom, etc. | | |