

Course name	Meteorology					
Code	PMP164	Year of study	3.			
Course teacher	prof. dr. sc. Darko Koračin	Credits (ECTS)	5			
Associate teacher		Instruction type (number of hours)	P	S	V	T
			35		20	
Course status	Elective	Percentage of application of e-learning	30			
COURSE DESCRIPTION						
Course objectives	Provide knowledge on: <ul style="list-style-type: none"> • Theoretical concepts of meteorology including atmospheric dynamics and thermodynamics • Basic physical conservation laws and their description using differential equations • Quantitative and qualitative description of forces in the atmosphere • Basic concepts of atmospheric models 					
Course enrolment requirements and entry competences required for the course	Requirements: <ul style="list-style-type: none"> • Basic physics • Basic chemistry • Basic mathematics 					
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Knowledge of atmospheric dynamics and thermodynamics Use of mathematical formalism describing atmospheric dynamics Practical computations related to atmospheric dynamics Skill developed to use atmospheric observations and model results using online resources					
Course content broken down in detail by weekly class schedule (syllabus)	<ol style="list-style-type: none"> 1. Review of mathematical methods and tools 1 2. Fundamental and apparent forces in the atmosphere 2 3. Conservation of momentum 2 4. Scale analysis 1 5. Geostrophic balance 1 6. Ageostrophic wind 2 7. Conservation of mass – continuity equation 2 8. Basics of atmospheric thermodynamics 3 9. Geopotential 1 10. Hypsometric equation 1 11. Energy conservation 2 12. Atmospheric stability 1 13. Thermal wind 1 14. Natural coordinates and balance flows 2 15. Geostrophic flow 1 16. Inertial flow 1 17. Cyclostrophic flow 1 18. Gradient flow 1 19. Circulation, vorticity, and divergence 2 20. Barotropic and baroclinic atmosphere 2 21. Dynamics of the planetary boundary layer 2 22. Turbulent processes in the atmosphere 2 23. Cloudiness, radiation and microphysics in the boundary layer 1 					
Instruction format:	Lectures, seminars, exercises, e-learning, homeworks.					

Student responsibilities	
Screening student work (name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)	Classes 2 Essay and presentations 1 Final Exam 1
Grading and evaluating student work in class and at the final exam	During each term, the student's knowledge is tested.. The final score is based on the knowledge shown during classes, essay and presentations and a final exam
Required literature (available in the library and via other media)	<ul style="list-style-type: none"> • Ahrens, D.: Essentials of Meteorology, Brooks/Cole CA, 2001 • Martin, J. E., 2006: Mid-Latitude Atmospheric Dynamics: A First Course. Wiley. 324 pp. • Online Weather Studies Textbook and Study Guide, American Meteorological Society, Boston • Penzar, B. i sur.: Meteorologija za korisnike, Školska knjiga Zagreb i Hrvatsko meteorološko društvo, 1996 • James R. Holton: An Introduction to Dynamic Meteorology, Academic Press; 1992 (III edition), 2004 (IV edition). • Stull, R., 2017: "Practical Meteorology: An Algebra-based Survey of Atmospheric Science" -version 1.02b. Univ. of British Columbia. 940 pages. isbn 978-0-88865-283-6 • Wallace J. M., and P. V. Hobbs, 2006: Atmospheric Science: An introductory Survey. 2nd ed., Academic Press. 483 pp.
Optional literature	<ul style="list-style-type: none"> • Krešo Pandžić, 2002. Analiza meteoroloških polja i sustava, Zagreb, HINUS • David G. Andrews, 2000. An Introduction to Atmospheric Physics, University Press, Cambridge
Quality assurance methods that ensure the acquisition of exit competences	<ol style="list-style-type: none"> 1. Analysis of the acquired learning outcomes at the end of the class, compared with the work of students. 2. Monitoring the development of students in the subjects who followed the links with the success of the case 3. Other surveys of students
Other (as the proposer wishes to add)	