COURSE NAME	INTRODUCTION TO FINANCIAL MATHEMATICS					
Code	PMMP505	Year of study				
Course teacher	Ana Perišić	Credits (ECTS)				
Associate teachers		Type of instruction (number of hours)	L	S	E	
			30		30	
Status of the course		Percentage of application of e-learning	30%			

COURSE DESCRIPTION	
Course objectives	An introduction to fundamental concepts of financial mathematics required for understanding and correct interpretation of mathematical models in finance. Acquiring essential financial modelling skills through presentation of applied mathematical techniques in financial practice covered by many examples.
Course enrolment requirements and entry competences required for the course	
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	Students will be able to: - explain the concept of the time value of money, - differentiate between nominal, proportional and effective interest rate, - calculate and interpret present and future values of cash flows, - construct amortization schedules for different loan repayment methods, - apply basic capital budgeting techniques and compare investment projects, - evaluating bonds and bond portfolios, - explain basic concepts of financial derivatives, arbitrage and replicating portfolio, - carrying out basic calculations in financial mathematics in a computer-supported way. - model and solve basic problems in economics and finance.
Course content broken down in detail by weekly class schedule (syllabus)	**Lectures/Exercises:** 1. Time value of money, simple and compound interest types of interest rates. (3) 2. Present and future values of cash flows; general annuities, perpetuities. (3) 3. Continuously compounded interest. (2) 4. Loan. Different loan repayment methods. Rescheduled loans. (3) 5. Intercalary interest. Effective interest. (2) 6. Partial exam. (1) 7. Capital budgeting techniques. Return. (3) 8. Bond: value, price, yield. (2) 9. Duration. Duration of a portfolio of bonds. (2) 10. Immunization. Convexity. (2) 11. Term structure of interest rates. (1) 12. Arbitrage. (1) 13. Financial derivatives, replicated portfolio. (3) 14. Partial exam. (1)
Format of instruction	x lectures X exercises x individual work

Student responsibilities	Attending lectures, writing homework.					
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)*	Attending lectures	0.1	Research		Practical	1.5
	Experimental work		Report			
	Essay		Seminar assignment			
	Colloquium	3* (colloquium or written exam)	Oral exam	0.4		
	Written exam	3* (colloquium or written exam)	Project			

Grading and evaluating student work in class and at the final exam	Attending lectures, writing homework, written and oral exam. During the semester, students have the possibility to partially take written exams through colloquia (twice during the semester). Students who pass both colloquia don't need to take part in the written exam.

	Title	Items in library	Available through other resources
Required literature (available in the library and via other media)	Z. Babić, N. Tomić-Plazibat, Z. Aljinović, *Matematika u ekonomiji*, Sveučilište u Zagrebu, 2009		No
	B. Šego, Z.,Lukač, *Financijska matematika*, Sveučilište u Zagrebu, 2011.		No
	Z. Aljinović,B. Marasović, B.Šego, *Financijsko modeliranje*, Sveučilište u Splitu, 2011.		No

Optional literature (at the time of submission of study programme proposal)	J. Cvitanić, F. Zapatero, *Economics and Mathematics of Financial Markets*, The MIT Press, 2004 S. Benninga, *Financial modeling*, 3rd ed, The MIT Press, Cambridge, 2008 Šegota, A. *Financijska matematika*, Sveučilište u Rijeci, 2012. Babić, Z., Tomić-Plazibat, N., *Poslovna matematika,* Ekonomski fakultet, Split, 2004.
Quality assurance methods that ensure the acquisition of exit competences	Summarizing test results and conducting an anonymous student survey at the end of the course. The survey is conducted according to the rules of the University of Split.
Other (as the proposer wishes to add)	