General information				
Course co-ordinator		Milan Papić, MSc, Senior Lecturer		
Course title		**ECONOMIC MATHEMATICS**		
Study programme		Professional undergraduate study Accounting and Finance		
Course status		Obligatory		
Year	Semester	1	I	
Value of credits and lecturing procedures		ECTS		5
		Number of hours (Lectures+Exercises)		60 (30+30)

1. COURSE DESCRIPTION

1.1. *Objectives*

Adopt basic concepts related to economic mathematics (percentage, interests, interest rate, simple and complex interest rate calculation, discursive and anticipatory compounding). Apply knowledge in solving tasks using a calculator (basic economic accounts, simple and complex interest rate calculation, initial and final value of one instalment (multiple periodic payments), consumer credit, loan). Apply knowledge in solving certain tasks using a computer (repayment schedule with various types of repayment models) and combine the acquired knowledge and skills from economic mathematics with the contents of other courses.

1.2. Course enrolment conditions

None

1.3. Expected outcomes of the course

1. to explain the basic terms in Economic Mathematics (percentage, interests, interest rate, simple interest rate calculation, discursive and anticipatory compounding)
2. to explain the similarities and differences between the simple and complex and discursive and anticipatory calculations of interests as well as conforming and relative interest rates
3. to solve more complex tasks using a calculator (basic economic accounts, application of simple and complex interest rate calculation)
4. to solve more complex tasks using a calculator (initial and final value prenumerando and postnumerando, continuous compounding, loan.)
5. to solve more complex tasks using a calculator (loan repayment table incl. various repayment models)
6. to combine the acquired knowledge and skills from economic mathematics with the contents of other courses

1.4. Course contents

1. BASIC ECONOMIC ACCOUNTS: Introduction in the term of relative numbers, Calculation of percentages, Permil calculation, Rule on triple division, account for mixture, chain account.
2. BASIC TERMS OF INTEREST RATE CALCULATION: Interest and interest rate, discursive and anticipative interest rate calculation, simple and complex compounding,
3. SIMPLE INTEREST RATE CALCULATION: simple discursive interest rate calculation, simple anticipative interest rate calculation, consumer credit
4. COMPLEX INTEREST RATE CALCULATION: final and initial value of an amount. Types of interest rates. Final (future) value of periodical nominally equal payments. Initial (present) value of multiple periodical nominally equal payments. Eternal rent. Constant (continuous) interest rate calculation.
5. LOAN: Model of loan repayment in equal annuities. Reprogramming and conversion of loan. Model of loan repayment in equal instalments. Model of loan repayment in equal annuities. Intercalary interests. .

1.5. Teaching methods	☒ lectures ☒ instruction ☒ guided discovery learning ☒ discussion ☐ group/team learning ☐ _____
1.6. Comments	

1.7. Students' obligations

The condition for acquiring a signature and thus being allowed to take the exam is regular attendance (70% for full time students and 50% for part time students) and the homework which comprises the creation of the table of loan repayment on the PC.

1.8. Monitoring students' accomplishments

Attendance	0.5	Student's activity during lectures	0.5	Seminar paper		Experimental work	
Written exam	1.5	Oral exam	1	Essay		Research work	
Project		Permanent testing of student's knowledge	0.5	Written presentation		Practical work	
Portfolio		Independent task solving	1				

1.9. Measuring the achievements of learning outcomes and evaluation and assessment of the results of students' work

The workload factor of each learning outcome stated in the Chapter 1.3. totals 1. A half of the workload factor for each learning outcome represents a minimum threshold for the achievement of the this learning outcome. The control of the acquired knowledge is performed during teaching hours through two mid-term written exams. The condition to take the first mid-term exam is the regular attendance. The condition to take the second mid-term exam is the passed first mid-term exam and regular attendance. Each mid-term exam represents 50% of the total record. If the students have passed both mid-term exams they are not obliged to take the final part of the written exam. The final grade represents an arithmetical mean of the grades in two mid-term exams. The exam is in a written form.

1.10. Obligatory literature

1. Papić, M.: *Poslovna matematika (uz primjenu MS Excela),* Zoro, Zagreb, 2014.

1.11. Optional literature

1. Vukičević, M.; Papić, M.: *Matematičko – statistički priručnik za poduzetnike*, Golden marketing – Tehnička knjiga, Zagreb, 2003.
2. Relić, B.: *Gospodarska matematika*, Hrvatska zajednica računovođa i financijskih djelatnika, Zagreb, 2002.
3. Relić, B.: *Financijske tablice*, Hrvatska zajednica računovođa i financijskih djelatnika, Zagreb, 2002.

1.12. Quality control which ensures the acquisition of the corresponding knowledge, skills and competences after the completion of the study.

At the end of the semester the students fill in an anonimous questionnaire. The comments, suggestiosn and information in the questionnaire and the evaluation procedures are to be used to improve lectures, exercises and other ways of work with students. Self-evaluation of teaching stuff is aimed at making some corrections in order to improve the quality of teaching.
The quality control of the course realization is carried out continuously on a number of levels:

- statistical processing and analysis of the results of written exams (mid-term exams)

- anonymous survey among students
- evaluation through observation of colleagues and self-evaluation of lecturers
- questionnaire on the web (accessable to students and lecturers)
- achieved results of the level of understanding and knowledge in the exam
- achieved results and the level of knowledge during writing and defending the final examination paper (students who write their final examination paper in Economic Mathematics or who apply a part of its contents in writing their final examination paper)
- back-up information from the students who have already completed the study on the usefulness of the contents of this course upon performing their business activities

1.13. Expected competences

- competence of problem-solving in the field of Economic Mathematics using a calculator and/or a PC (MS Excel).
- competence to apply the acquired knowledge and skills in practice