

Subject code	ECTS credits
MAT4007	6

Course title in Lithuanian

KURSINIS DARBAS

Course title in English

TERM PAPER

Short course annotation in Lithuanian (up to 500 characters)

Semestro eigoje studentai sprendžia teorinio arba praktinio pobūdžio matematinį uždavinį, kurį suformuluoja kursinio darbo vadovas. Kursinio darbo tema turi būti susijusi su bakalaurinio darbo tema. Kursinio darbas apiforminamas raštu. Jo sudėtinės dalys: įvadas, teorinės dalies pristatymas, analitinė dalis, pagrindiniai rezultatai ir išvados, literatūros sąrašas, priedai.

Short course annotation in English (up to 500 characters)

The goal of the project is to acquaint with various mathematical problems for different applied areas, applying the theoretical knowledge acquired in the studying process, to learn to process and to present the collected facts.

Prerequisites for entering the course

Study subjects of Mathematics field bachelor study programme
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Course aim

The goal of the research project is get acquainted with various mathematical problems in different application areas and learn to process and to present the collected facts applying the theoretical knowledge acquired in the studying process.

Links between course outcomes, criteria of learning achievement evaluation, study methods and methods of learning achievement assessment

No	Course outcomes	Criteria of learning achievement evaluation	Study methods	Methods of learning achievement assessment
1.	Perform the ability to get familiar with the various theoretical and practical mathematical problems	Student demonstrates the knowledge of particular mathematical problem, demonstrates the ability to formulate task, present solution process, justify received results	Individual work, consulting	Project report and presentation, assessed by a qualification commission, formed by the Dean of the Faculty.
2.	Knowledge on data collection for a particular decision problem			
3.	Perform the ability to analyse data of the particular problem.			
4.	Perform the ability to apply mathematical models, formulate conclusions on the theoretical and practical mathematical problem			

Links between study programme outcomes and course outcomes

Study programme outcomes	Running number of course outcome			
	1	2	3	4
Know and comprehend concepts and propositions of fundamental mathematical subjects, recognize and apply them solving practical/theoretical tasks	+	+		

Comprehend and be able to apply classical analytical and numerical methods as well as the main algorithms for solving differential equations	+	+		
Comprehend and be able to apply probabilistic and statistical methods for data analysis	+	+		
Know and understand the main theories of mathematical didactics, consolidate and integrate the main principles in education	+	+	+	
Know and comprehend the needs and importance of information technologies in study process, also be able to apply programming knowledge and skills, data structures and modelling	+	+	+	
Summarize and evaluate critically scientific and professional literature, as well as use various tools for collecting of information for the study process and for solving fixed practical/theoretical problems		+	+	
Identify the problem, collect and analyze real/theoretical data using various mathematical methods, tools and IT technologies		+	+	
Develop and apply appropriate mathematical models and tools, forecast and realize them for use in case analysis				+
Having good foundations of mathematics, logically and critically recognize and describe relations between quantities of real life and mathematical concepts				+
Operating with formal mathematical symbols and terms, determine mathematical connections between various mathematical quantities; conceive mathematical propositions and logical proofs, construct and prove new statements			+	+
Think logically and analytically, evaluate alternative ways of task solving and implement optimal solutions				+
Critically analyze and evaluate obtained results, take responsibility from the mathematical point of view				+
Work individually and/or in groups by developing and adopting appropriate mathematical models and tools for use in case analysis	+	+	+	+
Clearly and convincingly present problems and solutions, related to economics, energetics, biomedicine and didactics, to experts and non-experts using ground knowledge, reasoning, relevant presentation tools and methods				+
Plan self-learning based on personal needs and the ongoing professional development	+	+	+	+
Demonstrate awareness of economic, legal, social, ethical and environmental context in mathematical projects	+	+	+	+
Adapt to fast changing cultural, economic and technological environment	+	+	+	+

Distribution of workload for students (contact and independent work hours)

Consultations	15
Individual students work	75
Total:	90 hours

Structure of cumulative score and value of its constituent parts

Preparation of term paper – 70%, defending the term paper – 30%.
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Recommended reference materials

Depends on the content of the project.
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Course programme designed by

Prof. dr. Ričardas Krikštolaitis
