

Obuda University John von Neumann Faculty of Informatics		Institute of Applied Mathematics		
Name and Code: <i>Calculus II. NMXAN2EBNE</i>		Credits: 6		
<i>BSc in Computer Science and Engineering</i>		<i>2022/23 year II. semester</i>		
Subject lecturers: Dr. Vajda István, indrit Ferati				
Prerequisites (with code):		Calculus I. NMXAN1EBNE		
Weekly hours:	Lecture: 3	Seminar: 3	Lab. hours: 0	Consultation: 0
Way of assessment:	Exam			
Course description				
<i>Goal:</i> Students have to understand the basic notions of calculus and acquire the necessary knowledge and skills to solve problems related to computer science and engineering. The course material corresponds with the international trends of instructions.				
<i>Course description:</i> Integral calculus and its application. Improper integrals. Ordinary differential equations. Laplace-transform. Series of numbers. Series of functions: Taylor series, Fourier series. Functions of several variable.				

Lecture schedule	
Education week	Topic
1.	Integration of elementary functions.
2.	Applications of integrals in geometry: Area, volume, arc length, surface area of solid of revolution. Applications of integral in physics: work, centre of gravity.
3.	Numerical integration. Improper integrals.
4.	Differential equations (basic notions). Separable differential equations.
5.	First order linear differential equations.
6.	Second order linear differential equations.
7.	Laplace transform and its applications.
8.	Series of numbers.
9.	Tests of convergence. Series of functions.
10.	Taylor series.
11.	Fourier series.
12.	Functions of several variables, partial derivative, total derivative.
13.	Integration of functions of several variables.
14.	Extrema of functions of several variables.

Midterm papers	
Education week	Topic
6.	Integral calculus, differential equations.
12.	Differential equations, Laplace transform, series.
14.	Retake one of the tests.

Midterm requirements

Signature requirements:

It can be achieved 50-50 points at most on midterm test. (100 points altogether)

Students can get their signature only if all the following conditions are fulfilled:

They attend the lessons regularly (see [study-and-examination-regulations-of-obuda-university.pdf](#)).

They don't fail to hand in both midterm tests. The results of the midterm test are at least 30% (15 points) in both cases.

Students achieve at least 50% (50 points) on the two tests altogether.

The test are written in a classroom under the supervision of the teachers. They contain a theoretic part and a practical.

Without a signature students can not register for the exam.

Should online instruction enacted during the semester due to pandemic, then students have to solve shorter midterm tests in every three weeks. In this case they can download the questions from the Moodle system, and they are to upload the answers into the Moodle in time. We elaborate the details only if its necessary.

Retake test

If a student has less then 50% of the points on the midterm tests or failed to hand in one of them, or has less than 30% of the points for one of them, then they can retake the missing midterm test or the one with less achieved points on the 14th week. In the latter case the newly achieved points will replace the points of the original test. Students can get their signature if they have at least 50 points altogether and at least 15 points for both midterm tests separately after the retake.

If a student achieved less than 30% of the points on both test, then they can not write the retake, they can only obtain their signature writing the signature retake exam in the exam period. Students absent from more then 30% of the lessons, or failed to hand in both of their midterm tests, will be banned. In this case, they can not take their exam in this semester.

Students who have no signature at the and of the 14th week, but are not rejected, may take the signature retake exam.

Signature retake exam

If a student has written all midterm tests, but achieved less than 30% of the points on either of them, or their overall result is under 50% and their absence at seminars does not exceed 30% of the total number of lessons, they have one opportunity to write a paper covering the whole course material in the exam-period. The test contains simple questions and students need to achieve at least 60% of the scores for the end-term signature.

Please note, that if you don't write both of your tests, then you will not have this opportunity!

Exam

Students have to sit a written exam, which has a theoretic part and a practical. They can get at most 30 points for the theoretic part, 40 points for the practical. They need at least 50% on both part to pass the exam. If they fulfilled these conditions, we add to their achieved points 30% of the points they achieved on the midterm test, i.e., they can have at most 100 points. The grade of the exam is decided as the table shows:

0-49%:	failed (1)
50-61%:	satisfactory (2)
62-73%:	average (3)
74-85%:	good (4)
86-100%:	excellent (5)

If only online exams will be allowed, then there will be a written and an oral part of the exam managing through Moodle and Teams. Only those students can take the oral part, who achieved at least 50% percent on the written part. To get a passing grade you have to pass both the written and the oral part. More details will be announced, if its necessary.

References

Mandatory:

M. J. Hass, M. D. Weir, G.B. Thomas: University Calculus Early Transcendentals, Addison-Wesley, 2007.

Recommended:

<http://elearning.uni-obuda.hu/>