Obuda University John von Neumann Faculty of Informatics			Institute of Applied Mathematics	
Name and Code: *Calculus II. NMXAN2EBNE*			**Credits: 6**	
BSc in Computer Science and Engineering			*2020/21 year II. semester*	
Subject lecturers: Dr. Vajda István, Nás Hunor István				
Prerequisites (with code):	Calculus I. NMXAN1EBNE			
Weekly hours:	Lecture: 3	Seminar: 3	Lab. hours: 0	Consultation: 0
Way of assessment:	Exam			

Course description

Goal: 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.

Course description: 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
3.	Integral calculus.
6.	Differential equations.
9.	Laplace transform, series of numbers.
12.	Series, functions of several variables.
13.	Retake one of the tests.

Midterm requirements

Signature requirements:

Students have to attend the lessons regularly. If the missed lessons go beyond 30% of the total, then they become rejected, that is they failed the subject.

Students are required to write four mid-term tests that contain theoretic questions an practical exercises (calculations). They can achieve at maximum 25-25 points for each that is 100 point altogether.

While due to the pandemic visiting the university is forbidden, you can find your midterm paper in the Moodle system, where you can upload your solutions in a given time period. What happens if (when) we return to the normal education is not decided at the moment. We may return to write your tests in classroom environment or may continue using the Moodle system. You will be informed about this through Moodle system, and/or personally.

In order to get a signature, your missing lessons can not be more than 30% of the total, you have to write and submit all four midterm tests, and the sum of their results must be at least 60% of the total 100 points.

Without a signature you can not register for exams of the subject.

Retake test

Students have an opportunity to retake a missing test (but only one) the last week of the semester. Someone without two written test becomes rejected at the end of the terms. The retake tests comprise the same topics as the original one.

If someone have written all the midterm tests already, but is not satisfied with the result, then they can retake the midterm test they got the least point for the last week of the semester. You can retake one test only. In this case your new points overwrites the ones you got originally for this test.

Signature retake exam

If a student has written all midterm tests, but their overall result is under 60%, 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 of your tests, then you will not have this opportunity!

Type of exam

Students possessing the end-term signature can take the end-term exam. If at the beginning of the exam period students allowed to stay in the buildings of the university, then the type of exam is written. The exam paper contains theoretic and practical questions (40+60 points) as well. To pass the exam students have to achieve at least 50% from each the theoretic and practical part.

If a student needs only a few (at most 3) points to get a better grade, then they can improve there score answering some questions at a place and time given by the instructor. If the examinee misses this opportunity, then they get no other chance.

If due to the pandemic its not possible to organize the exams in the buildings of the university, then (even if only in part of the exam period), then the exams will have a written and an oral part. In this case the exam papers will be available in the Moodle system and students have to upload their solutions into the system till the deadline. If someone achieves less than 50% of the points, then they failed their exam, and will not sit the oral part.
The oral part is organised through Microsoft Teams. To pass your exam you need at least a grade 2 on the oral part as well. If both your written and oral part is satisfactory, then considering both part you get a final grade for your exam.

The grade of the written part

The table below shows your grade for the written part based on the achieved points:

Points	Exam mark
0-49%	fail (1)
50-61%	pass (2)
62-73%	satisfactory (3)
74-85%	good (4)
86-100%	excellent (5)

References

Mandatory:

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

Recommended:

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