General Information:

Name of Course: # MATHEMATICS 2.

Course Code: EPE076ANEM
Semester: 2nd
Number of Credits: 4
Allotment of Hours per Week: 1 lecture, 2 practices
Evaluation: Exam (with grade)
Prerequisites: -
Instructors:

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Introduction, Learning Outcomes
The lectures teach some elements of important mathematical techniques that are used in an architect's practice.
After completion of this course, the student should be able to: **interpret,** and **put into practice:**

- **a.** Plotting the graph of simple functions of one variable
- **b.** Differentiating functions
- **c.** Finding the antiderivative; calculating definite integrals
- **d.** Calculating surfaces and volumes using integration
- **e.** Calculating the center of mass using integration.

General Course Description and Main Content:
Brief Syllabus: The course aims to give architect students a solid mathematical basis, through lectures and practical classes, by covering the following topics:

- Graphs of elementary functions
- Domain of a function, continuity, limits
- Differentiation of elementary functions
- Rules of differentiation
- Integral of elementary functions
- Rules of integration
- Application of integration and differentiation (area, volume, the center of mass)
- Quadratic surfaces

Students learn the basics of mathematics enabling them to interpret and understand architectural sciences and through solving elementary tasks they deepen their basic theoretical knowledge in the field of architecture.

Methodology:
The presentations give an introduction to important mathematical techniques of exercise solving and the basic theory of differentiation and integration. Equal emphasis is given to learning new mathematics and to learning how to construct and write down correct mathematical arguments. During the course student learn to apply matrix computations parallel to visualisation of transformations.

Mathematics 2. **Course Syllabus**

Course Code: EPE076ANEM Time: L Tuesday 12:00-12:45

Semester: 2nd of 2020/2021, Spring P Tuesday 13:15-14:45

Location: PTE MIK,L A-216, P A-216

Schedule:

Study period in 15 weeks: 1 February – 15 May, 2021

1. Sequences: boundedness, convergence, limit.
2. Finding the limit of sequences.
3. Graph of polynomials, exponential, sine, cosine functions, transformations, inverse functions.
4. Derivative of basic functions; rules of differentiation: product and quotient rule
5. Chain rule of differentiation
6. Applications of differentiation: describing/plotting the graph of a function.
7. Finding the minimum/maximum of a function.
8. Revision before test; Midterm Test in the practice class.
9. Partial derivatives and the gradient vector of a bivariate function; indefinite integral.
10. (Spring break)
11. Definite integral (Newton-Leibniz Theorem)
12. Application of integration: area, volume, centre of mass
13. Double integrals: domain, changing the order of integration.
14. Revision; Final Test in the practice class
15. Possible retake for both tests.

Exam period starts on 17 May 2021.

Attendance:

Attending all classes is required. In case of absence from more than 30% of the total number of lessons will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 20 minutes will be counted as an absence.

Evaluation + Grading

Grading will follow the course structure with the following weight:

1. Tests 100%
2. Proposed exam grade: over 65 % during the study and correction period.
3. Oral exam in the exam period. A minimum of 55% is required to pass the exam.

Grading scale

Numeric Grade:	5	4	3	2	1
Evaluation in points:	89%-100%	77%-88%	66%-76%	55%-65%	0-54%

Students with special needs:

Students with special physical needs and requiring special assistance must first register with the dean of the Students Office. All reasonable requests to provide an equal learning environment for all students is to be assured.

Required reading and other materials:

Lecture notes provided during the course;
http://www.columbia.edu/itc/sipa/math/calc_rules_func_var.html
http://tutorial.math.lamar.edu/Classes/CalcIII/QuadricSurfaces.aspx

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