

Week: April 19 – April 25, 2021

Topic: **Line integral**

The below provided instructions should guide you through studying the topic. For additional explanation, clarification and extra material contact the Lecture/Tutorial teacher by email or the MS-Teams platform for live online consultation (see webpage for the link).

https://mat.nipax.cz/mathematics:mathematics_ii

This week we are starting new chapter on line integral. The notion of a curve, its parametrization and integral of a scalar function will be explained during the first lecture. The integral of vector function will be discussed in the second lecture. Most of the applications and associated explanations and extensions will be left for the next week.

1) Read and learn the explanation from the textbook. Scanned pages can be found on the web page.

https://mat.nipax.cz/media/mathematics:pages_70-83.pdf

Some of this material is for this week some for the next one.

Additional material and alternative explanation with many figures and exercises can be found in (free) online available textbooks

<http://www.math.wisc.edu/~keisler/calc.html>

namely chapter 13 http://www.math.wisc.edu/~keisler/chapter_13.pdf

<https://openstax.org/books/calculus-volume-3/pages/1-introduction>

namely chapter 6 <https://openstax.org/books/calculus-volume-3/pages/6-introduction>

2) Take a look at the solved exercises from our collection of examples

questions: https://mat.nipax.cz/media/line_integral_1.pdf

complete solutions (in Czech): https://mat.nipax.cz/media/krivkovy_integral_komplet.pdf

3) As a training solve (at least) the following exercises.

450, 452, 453 – line integral of a scalar function

504, 506, 507 – line integral of a vector function

4) As a long term homework, to be delivered at specified deadline, solve all the corresponding exercises from sample exams from our webpage

https://mat.nipax.cz/media/mathematics:ma2_exam_1n_en.pdf

https://mat.nipax.cz/media/mathematics:ma2_exam_2n_en.pdf

https://mat.nipax.cz/media/mathematics:ma2_exam_3n_en.pdf

The delivery of all sample exams, completely and correctly solved (by yourself) is necessary (but not sufficient) condition for obtaining the assessment from tutorials.

DEADLINE: April 26, 2021 for the second part of the homework
(3rd and 4th exercise from Exam 1, Exam 2 and Exam 3,
except exercise 3 from Exam 1A and exercise 3 from Exam 3A)