

Tárgytematika / Course Description

Mathematics 1

GKNB_MSTA001

Tárgyfelelős neve /

Teacher's name: dr. Horváth Zoltán

Félév / Semester: 2019/20/1

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 4/2/0

Tárgy féléves óraszám /

Teaching hours(sem.): 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

Learning objectives:

Learn the general concept and properties of functions with applications to real-world situations. Learn to calculate derivative and integral of functions, focusing on engineering problems.

TANTÁRGY TARTALMA / DESCRIPTION

Weekly schedule and topics

- Week 1: Complex numbers
 - Complex numbers (Algebra & Trigonometry, Chapter 2.4, pages 111-118)
 - Polar form of complex numbers (Algebra & Trigonometry, Chapter 10.5, pages 815-825)
- Week 2: Basic notions of functions 1
 - Review of functions (Calculus 1, Chapter 1.1, pages 8-35)
 - Basic classes of functions (Calculus 1, Chapter 1.2, pages 36-61)
 - Trigonometric functions (Calculus 1, Chapter 1.3, pages 62-77)
- Week 3: Basic notions of functions 2
 - Inverse functions (Calculus 1, Chapter 1.4, pages 78-95)
 - Exponential and logarithmic functions (Calculus 1, Chapter 1.5, pages 96-116)
- Week 4: Limits (Calculus 1, Chapter 2, pages 123-212)
 - The limit of a function (Calculus 1, Chapter 2.2, pages 135-159)
 - Limit laws (Calculus 1, Chapter 2.3, pages 160-178)
 - Continuity (Calculus 1, Chapter 2.4, pages 179-193)
 - Precise definition of a limit (optional, not for exam or tests) (Calculus 1, Chapter 2.5, pages 194-207)
- Week 5: Derivatives (Calculus 1, Chapter 3, pages 213-264)
- Week 6: Derivatives (Calculus 1, Chapter 3, pages 266-309)
- Week 7: Derivatives (Calculus 1, Chapter 3, pages 309-340)
- Week 8: Applications of Derivatives (Calculus 1, Chapter 4, pages 341-390)
- Week 9: Applications of Derivatives (Calculus 1, Chapter 4, pages 391-438)
- Week 10: Applications of Derivatives (Calculus 1, Chapter 4, pages 439-506)
- Week 11: Integration (Calculus 1, Chapter 5, pages 507-566)

- Week 12: Integration (Calculus 1, Chapter 5, pages 567-622)
- Week 13: Applications of Integartion (Calculus 1, Chapter 5, pages 623-685)
- Week 14: Applications of Integration (Calculus 1, Chapter 5, pages 686-762)

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Details can be found at <http://www.sze.hu/~harmati/mathematics01.html>

Participation on lectures and practical is not obligatory but recommended.

Tests:

Two tests during the semester: week 7 and week 13. Minimum level: 50% (average of the two tests). If you don't reach it, you can write an extra test on week 14 which covers the material of Test 1 and Test 2. If you are below 50% at this extra test, too, your semester is unsuccessful.

Exam:

Written exam: simple theoretical questions and problem-solving. Grades vs. percentage:

0-49	1 (fail)
50-59	2 (pass, satisfactory)
60-74	3 (fair, average)
75-84	4 (good)
85-100	5 (excellent)

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

The referred materials can be found at <https://openstax.org/subjects/math>
