Tárgytematika / Course Description
Mathematics 1

GKNB_MSTA001

Tárgyfelelős neve / Teacher's name: dr. Harmati István
Félév / Semester: 2024/25/1
Beszámolási forma / Assesment: Vizsga
Tárgy heti óraszáma / Teaching hours(week): 4/2/0
Tárgy féléves óraszáma / 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

Written exam. 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

AJÁNLOTT IRODALOM / RECOMMENDED MATERIAL