

## Tárgytematika / Course Description Solid Mechanics 3.

GKNB\_AMTA021

**Tárgyfelelős neve /**

**Teacher's name:** dr. Antali Máté

**Félév / Semester:** 2024/25/1

**Beszámolási forma /**

**Assesment:** Folyamatos számonkérés

**Tárgy heti óraszám /**

**Teaching hours(week):** 2/2/3

**Tárgy féléves óraszám /**

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

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### OKTATÁS CÉLJA / AIM OF THE COURSE

The courses in Solid Mechanics aim to provide general basic knowledge about the concepts and methods in Solid Mechanics and develop skills in applying these methods in engineering problems through problem-solving and project tasks. Solid Mechanics 3 focuses on Finite Element Method and Dynamics.

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### TANTÁRGY TARTALMA / DESCRIPTION

The semester covers the following topics:

Basics of Finite Element Method

Finite elements of trusses and beams

Kinematics of point masses

Dynamics of point masses

Kinematics of rigid bodies

Kinematics of mechanisms

Planar dynamics of rigid bodies

Dynamics with friction

Collisions

Spatial dynamics of rigid bodies

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### SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESSMENT'S METHOD

Students can reach a maximum of 100 points in the semester.

A maximum of 70 points can be reached from two tests.

A maximum of 30 points can be reached from project tasks.

For a successful semester, the minimum conditions are

to reach at least 40% of the points from each test,  
and to reach at least 40 points in the whole semester.

Each missing or unsuccessful test can be repeated once.

At the end of the semester, not satisfying the minimum conditions results in grade fail (1).

When the minimum conditions are satisfied, the grades are determined:

40 – 54 points: pass (2)

55 – 69 points: satisfactory (3)

70 – 84 points: good (4)

85 – 100 points: excellent (5)

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### **KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL**

Logan D.: A First Course in Finite Element Method, 5<sup>th</sup> ed. CL Engineering, 2016

Hibbeler, R.: Engineering Mechanics: Dynamics, 14<sup>th</sup> ed., Pearson, 2015

Gross, D. et. al.: Engineering Mechanics 3: Dynamics, 2<sup>nd</sup> ed., Springer, 2013

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### **AJÁNLOTT IRODALOM / RECOMMENDED MATERIAL**