Óbuda University Bánki Donát Faculty of Mechanical and Safety Engineering	Insitute of Mechatronics and Vehicle Engineering

Subject title and code: **Vehicle Dynamics BMXJDE3MNE** **Credits:** *2*

Full-time study 2023/24 *ac.* 1 *semester year*

The course is available at: mechatronical engineering

Supervised by: Dr. Tamás Szakács	**Instructors:** Dr. Tamás Szakács

Prerequisite (neptun code): Applied Mathematics (BMXAME1MNE)

Weekly number of lessons

Lecture: 2	Group seminar: 0	Lab: 0	Consultation: 0

Way of assessment: Exam (Choose)

Online consultation *(in case it's required):* *... (BBB link)*

Educational goal: The student acquires knowledge about the movement of motor vehicles, with particular regard to the dynamics of the movement of vehicles

Schedule

Education week	**Topics**
1.	Static axle loads and their influencing factors
2.	The evolution of wheel loads during cornering, side sleep (skip), and roll-over limit situations
3.	Pull-force balance, and resistances
4.	Pull-force-diagram, and consequences.
5.	Wheel-slip, wheel-forces, Modelling of tire-soil interaction.
6.	Side-skipping angle, and side forces.
7.	Condition for wheels to roll without slipping around corners (Ackermann condition).
8.	Natural, under, and oversteering conditions.
9.	Single and multi-mass vehicle models
10.	Differential equation of a vehicle dynamics model
11.	Chassis geometry
12.	Drive stabilizers
13.	test
14.	Swings of vehicles.

Mid-semester requirements

Test		Assignment to be submitted		Lab measurement	
amount	dates	amount	deadlines	amount	dates
1	13th week				

According to the Study and Examination regulations of Óbuda University attendance of group seminars and lab exercises are mandatory.

Other requirements for participation in sessions not covered by the regulations and restrictions on substitutions:

Test		Assignment to be submitted		Lab measurement	
maximum points available	minimum score required to pass /test	maximum points available	minimum score required to pass / assignment	maximum points available	minimum score required to pass /lab
100 points	51points	…points	…points	…points	…points

Total number of points achievable in semester: 100points				
Grading thresholds	**satisfactory** 51 % and above	**average** 63 % and above	**good** 76 choose	**excellent** 88 choose

Other evaluation criteria:	
Receive a signature denied entry:	During the semester, students write a midterm test for which they receive a grade. The student who writes a midterm test with at least a sufficient grade will receive a signature from the subject. We provide two options for improving a closed-door thesis with an "Insufficient" evaluation in the framework of a consultation. If the student writes the test as insufficient and does not correct it, the student must be banned from the course
Required references:	http://siva.bgk.uni-obuda.hu/~szakacs/segedanyagok/0910/JDEN/JDEN.html
Recommended references:	
Quality assurance methods of the subject:	

Things, that are not included, can be found within the regulations of Óbuda University.