Schedule Computational Dynamics for Robotics WS 19/20

Day	Date	Type	Content	Homework (due before class)	Practice (after class)
Tue	22.10.2019	V	Intro; goals of the class; recap kinematics		
Thu	24.10.2019	Ü	P3, P4, P5, intro to 'Simscape Multibody'	P1, P2	(P4)
Tue	29.10.2019	V	Recap kinematics cont.		P10
Thu	31.10.2019	V	Homog. coords, recap particle dyn., ang. mom.	P13, P18	
Tue	05.11.2019	V	Rigid body dynamics, inertia, angular momentum		
Thu	07.11.2019	Ü	P7, P8, intro to framework, OO: data structures	P6	P9
Tue	12.11.2019	V	From particles to extended bodies, intro constraints		P19, P20
Thu	14.11.2019	V	Constraint derivatives, constraint classification		
Tue	19.11.2019	V	(Non-)holonomic constraints, topology, linked lists		
Thu	21.11.2019	Ü	P15, P17, rigid body kin. & dyn., visualizing inertia	P11, P12, P16	P14, (P17)
Tue	26.11.2019	V	Recursive algorithms, transformations across a joint		P26, P27
Thu	28.11.2019	V	Velocities and accelerations across a joint	P21	
Tue	03.12.2019	V	Jacobians across a joint, Jacobi transpose mapping		P35
Thu	05.12.2019	Ü	P24, P25, linked lists, recursive kinematic algorithm	P22, P23	(P25), P28
Tue	10.12.2019	V	Constrained particle dynamics		
Thu	12.12.2019	V	Intuition for the EoM, constrained rigid body dynam		P40, P41
Tue	17.12.2019	V	Dynamics of constrained rigid bodies		P39
Thu	19.12.2019	Ü	P31, P32, Inheritance, jacobi transpose mapping	P29, P30	P33, P34, P36
Tue	24.12.2019		Winter break		
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Thu	02.01.2020		Winter break		
Tue	07.01.2020	V	Closing Loops (implicit Constraints)		
Thu	09.01.2020	V	Unilateral constraints & collisions		
Tue	14.01.2020	V	Collisions cont.		
Thu	16.01.2020	Ü	P37, Deriving the Equations of Motion		P38
Tue	21.01.2020	V	Virtual model control		
Thu	23.01.2020	V	Computational complexity, recursive Newton-Euler		
Tue	28.01.2020	V	Order n'-forward dynamics		
Thu	30.01.2020	Ü	P44, P46	P42, P43	P45, (P46), P47
Tue	04.02.2020	V	Order n'-forward dynamics cont.		
Thu	06.02.2020	V	Recap/reserve		

V	Lecture
Ü	Exercise