

Course DMS B3: «Contact Mechanics and Elements of Tribology»

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February 8-12, 2021

Monday, February 8

9h00 – 10h30	Lecture: «Industrial Applications»
10h30 – 10h45	Break ☹
10h45 – 12h15	Lecture: «Mechanical Contact»
12h15 - 13h30	Lunch break
13h30 - 16h30	Blackboard «Flamant's problem»

Tuesday, February 9

9h00 – 10h30	Lecture: «Contact and Mechanics of Materials»
10h30 – 10h45	Break ☹
10h45 – 12h15	Lecture: «Contact at Small Scales: Surface Roughness»
12h15 - 13h30	Lunch break
13h30 - 16h30	Practical work «Numerical Integration of Flamant's Solution (Python)»

Wednesday, February 10

9h00 – 10h30	Lecture: «Computational Contact Mechanics»
10h30 – 10h45	Break ☹
10h45 – 12h15	Lecture: «Lubrication and Sealing»
12h15 - 13h30	Lunch break
13h30 - 16h30	Practical work «Implementation of finite element contact algorithms (Python)»

Thursday, February 11

9h00 – 10h30	Lecture: «Fretting and Wear» (by H. Proudhon)
10h30 – 10h45	Break ☹
10h45 – 12h15	Lecture: «Friction and adhesion»
12h15 - 13h30	Lunch break
13h30 - 16h30	Practical work «Analytical and numerical solving of contact problems (Blackboard+Python)»

Friday, February 12

9h00 – 9h40	Seminar: «Elastodynamic friction and instabilities»
9h45 - 10h30	Seminar: «Fretting wear and modelling of the contact oxygenation» (by P. Arnaud)
10h30 – 10h45	Break ☹
10h40 – 11h25	Seminar «Fluid-solid interaction in leakage problems» (A. Shvarts, Glasgow University, UK)
11h30 - 12h15	Seminar «Nanosopic wear» (by R. Aghababaei, Aarhus University, Denmark)
12h15 - 13h30	Lunch break
13h30 - 16h00	Online written exam
16h00 - 16h30	Conclusion

FYI: all slides and scripts of the course are available on www.yastrebov.fr/teaching.html