



Politecnico
di Torino

Moldex3D



The Politecnico di Torino experience

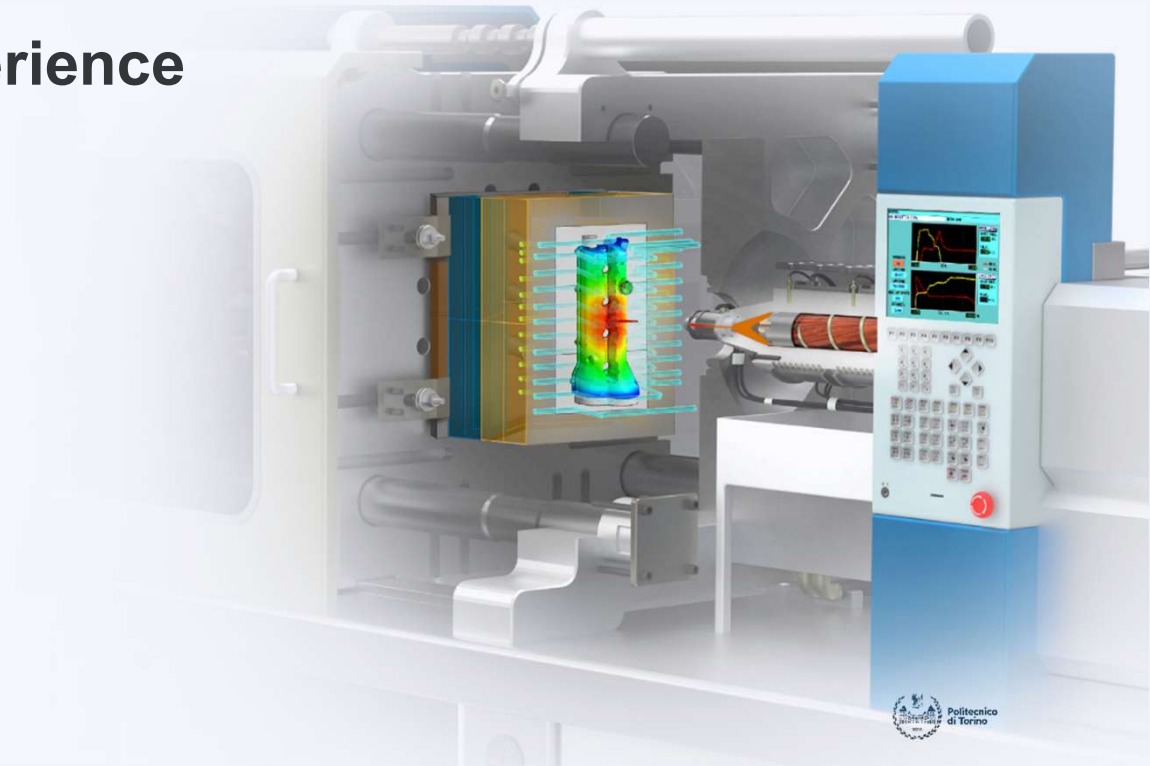
Politecnico di Torino
Prof. Alberto Frache

2023 MID Moulding Innovation Day

June 20, Tuesday

Hotel dei Parchi del Garda – Lazise - Verona

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Politecnico di Torino

•One of the **top European technical Universities for education and research**, with 38,700 students and a teaching staff of more than 1,000.



Politecnico di Torino - DISAT



The banner features the Politecnico di Torino logo (1859) and the DISAT logo (Department of Applied Science and Technology). Below the logos are four panels: 'THE DEPARTMENT' (rainbow sphere), 'RESEARCH' (DNA helix), 'TEACHING' (molten metal), and 'THIRD MISSION' (industrial plant).

The Department of APPLIED SCIENCE AND TECHNOLOGY (DISAT) focuses on research and education involving the fundamental principles of matter and energy, their transformation and related engineering applications. It does so throughout a wide and complementary range of disciplines: physics of condensed matter and fundamental interactions, nanotechnology, chemistry, materials science, metallurgy, actively pursuing chemical, physical, materials and food engineering spanning from the conception of new processes, to the development of new chemical reactors and process units by modelling and experimental tools, from the optimisation of control strategies and devices to the design of pilot and industrial-scale plants.

• **Master course: MATERIALS ENGINEERING FOR INDUSTRY 4.0 (TORINO)**

• **Polymeric Materials Technology**

Processing: compounding, extrusion, injection molding,...

Why Moldex 3D @ PoliTO?

- **Students request**
- **Need for upgrading to current technologies**
- **Opportunity for knowledge growth**

The solution!!

- **1 experimental year 2017-2018: module of 20 hours within the Technology of Polymeric Materials course held by Eng. Andrea Romeo (Proplast)**
- **2 year 2018-2019: module of 20 hours within the Technology of Polymeric Materials course held by Politecnico Professors (Prof. Frache, Ing. Batteggazzore, Prof. Arrigo) with in-depth studies dedicated to the rheology of materials applied to injection moulding**

Current situation

A.A.: 2020-2021 / 2021-2022 / 2022-2023

Materials and production process simulation

(40 hours of CAD-CAM and FEM)

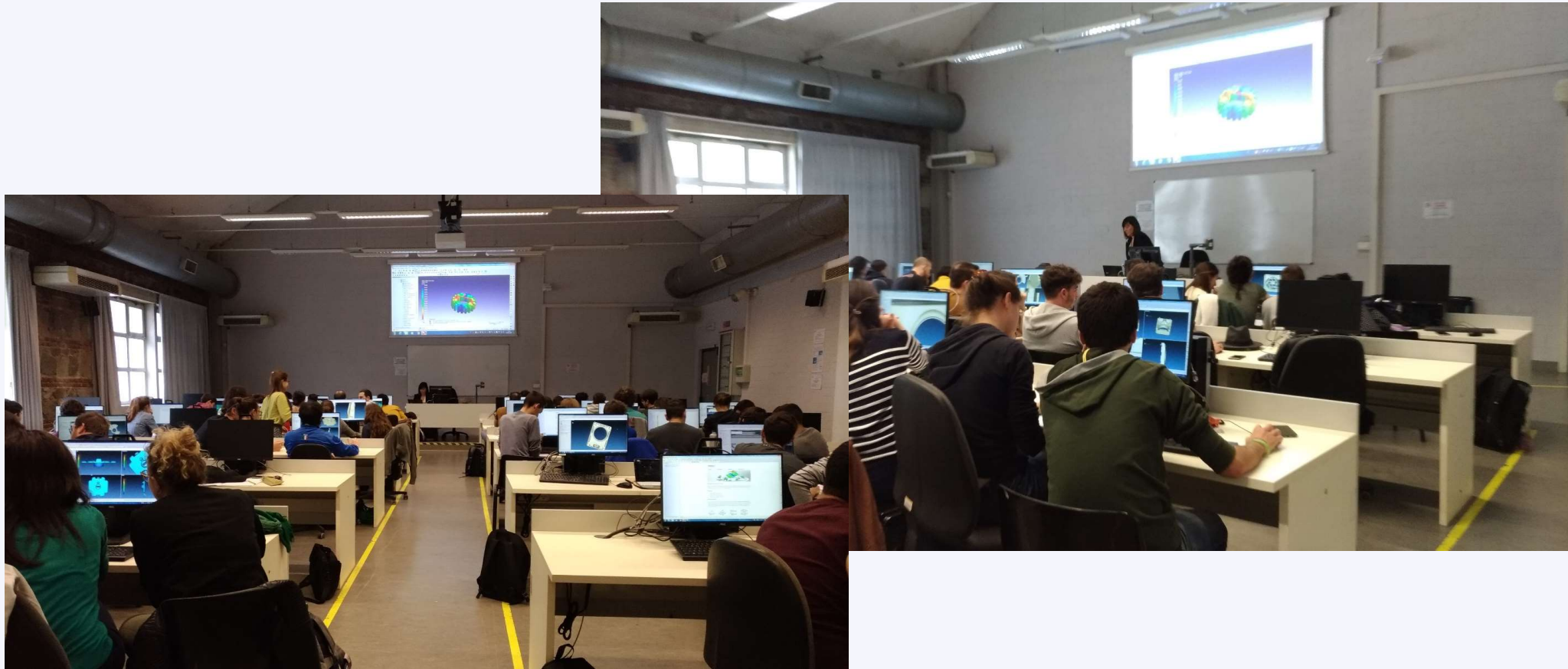
(20 hours of simulation process of metal forming)

(20 hours of Moldex 3D)

Total Students ≈60-70

From A.A. 2023-2024 there will be a growth in students to around 50 per year

Moldex 3D @ IT Lab.



Master and PhD thesis in collaboration

- E. Virgilio “Analysis of the encapsulation process of an electronic chip using Moldex3D” in collaboration with STMicroelectronics
- A. Aprà “Safe closed system biopsy containers” in collaboration with Traces srl
- F. Masiero “Evaluation of process parameters for injection molding of a biopolymer: comparison between experimental data and simulation.”
- D. Fiumarella “Re-Use of the carbon fiber prepreg cut-outs”*
-new possibilities of master thesis and PhD student for using Moldex3D@Polito

*(DIMEAS: Department of Mechanical and Aerospace Engineering)

Thank You

Moldex3D