UNIVERSITÀ DEGLI STUDI DI PADOVA

MASTER (LM) DEGREE COURSE IN

MATHEMATICAL ENGINEERING

Study track MATHEMATICAL MODELLING FOR ENGINEERING AND THE SCIENCES

Study programme for students enrolled in the academic year 2025-2026

1st YEAR	
MANDATORY UNITS	**CREDITS**
Analytical and stochastic mathematical methods for engineering	**12**
Introduction to partial differential equations	**9**
System identification and data analysis	**9**
Numerical methods for differential equations	**6**
Mathematical physics (c.i.)	
Continuum mechanics (mod. A)	**6**
Dynamical systems (mod. B)	**6**
Statistical mechanics of complex systems	**9**
Numerical methods for continuous systems	**6**
OTHER MANDATORY ACTIVITIES	
English language B2 (productive skills)	**3**
2nd YEAR	
2 FREE-CHOICE UNITS, AMONG THE FOLLOWING	**CREDITS**
Advanced fluid mechanics	**9**
Advanced solid mechanics	**9**
Electromagnetism	**9**
2 FREE-CHOICE UNITS, AMONG THE FOLLOWING	**CREDITS**
Water resources management	**6**
Groundwater hydrology	**6**
Coastal flooding hazard	**6**
Computational astrodynamics	**6**
Laboratory of astrophysics 1	**6**
Game theory	**6**

9 ADDITIONAL FREE-CHOICE CREDITS	
Environmental fluid mechanics	**6**
Computational electrical engineering	**9**
Advanced quantum physics	**6**
Computational methods for materials science	**6**
Methods and models for combinatorial optimization	**6**
Numerical methods for high performance computing	**6**
Applied computational fluid dynamics	**6**
FINAL THESIS/DISSERTATION	**15**

ANY FURTHER NOTES

Attendance at teaching activities is not compulsory but strongly recommended.

MASTER (LM) DEGREE COURSE IN

MATHEMATICAL ENGINEERING

Study track FINANCIAL ENGINEERING

Study programme for students enrolled in the academic year 2025-2026

1st YEAR	
MANDATORY UNITS	**CREDITS**
Analytical and stochastic mathematical methods for engineering	**12**
Introduction to partial differential equations	**9**
System identification and data analysis	**9**
Numerical methods for differential equations	**6**
Stochastic methods for finance	**9**
Stochastic differential equations (with numerics)	**9**
Scientific computing & object oriented programming	**6**
OTHER MANDATORY ACTIVITIES	
English language B2 (productive skills)	**3**

2nd YEAR	
MANDATORY UNITS for students who will attend the 2nd year at ESILV	**CREDITS**
Mathematical tools for economics and finance 2	**9**
Risk management	**9**
Portfolio optimization	**9**
MANDATORY UNITS for students who will attend the 2nd year at UniPD	**CREDITS**
Quantitative risk management	**9**
Artificial intelligence	**6**
Deep Learning	**6**
Risk and insurance	**6**
9 ADDITIONAL FREE-CHOICE CREDITS	
TRAINSHIP	**6**
FINAL THESIS/DISSERTATION	**15**

ANY FURTHER NOTES

Attendance at teaching activities is not compulsory but strongly recommended.
Students enrolled in FINANCIAL ENGINEERING study track can choose to attend the 2nd year at Ecole Supérieure d'Ingénieurs Léonard de Vinci (ESILV, Paris) or at UniPD.